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Cover: Fish species recorded in the Gowthami-Godavari Estuary, Andhra Pradesh: *Lutjanus johnii* (top left), *Triacanthus biaculeatus* (top right), *Acentrogobius cyanomos*, *Elops machnata*, *Trypauchen vagina*, *Oxyurichthys microlepis*. © Paromita Ray.



INTRODUCTION

Non-native species or alien species have captured attention of the scientific community, ecologists, and environmentalists. It was once considered that alien plants will not spread in high mountains, but ongoing processes of economic development such as trans-boundary trade and migration have altered the situation (Khuroo et al. 2007). Recent studies have reported that increasing global trade and climate change will drastically affect the spread of non-native species (Khuroo et al. 2007; Bellard et al. 2018; Panda & Behera 2019; Tripathi et al. 2019) outside their native habitats. Several studies have attempted to investigate the impact of climate change on the spread of invasive alien species (IAs) using predictive modelling (Wasowicz et al. 2013; Chakraborty et al. 2018; Wan & Wang 2018; Mungi et al. 2020). According to Ahmad et al. (2019), approximately 65% of the total geographical area of India is prone to invasion by *Parthenium hysterophorus*, one of the world's worst weeds, with the western Himalaya being highly vulnerable under changing climate scenarios. Adhikari et al. (2015) identified invasion hotspots of alien species in India, and reported that most of the biodiversity hotspots, coastal regions and forest reserves are prone to plant invasion. Half of the total geographical area of India is vulnerable to invasion by alien plant species owing to favorable climatic conditions. Mungi et al. (2018) and Thapa et al. (2018) predicted that global climate change in the future will lead to expansion of invasive species in the western Himalaya. Weber & Li (2008) suggested that economic development is directly proportional to the rate of biological invasion. Also, it is observed that higher levels of imports and human development were responsible for the increase in the number of invasive species (Nunez & Pauchard 2009). Invasive species have high capacity to tolerate wide environmental conditions, high growth and dispersal rates along with short generation time, which resulted in their successful establishment (Lamsal 2018). Besides having aesthetic costs, such as change in land-use patterns, reduced crop production (Born et al. 2004), loss of native species, degradation of resources (Everard 2018), these invasive alien species incur huge economic costs. Further, the annual costs due to invasive alien species have been estimated to about US\$137 billion in USA, US\$14.5 billion in China (Weber & Li 2008), €12 billion in Europe, and £1.7 billion in Great Britain (Reshi & Khuroo 2012). Considering this in view, the documentation, identification, and economic evaluation of invasive alien species at the national level in general and at regional levels, specifically would be

required.

The spread of IAs has raised significant concerns around the world; studies aimed at tracking and understanding the impact of alien flora have been undertaken in China (Liu et al. 2005; Weber & Li 2008; Qin et al. 2018; Yang et al. 2018b; Zhu et al. 2018), Japan (Enomoto 1999), Korea (Koh et al. 2000), Taiwan (Wu et al. 2004), and Singapore (Corlett 1988). India is also facing problems of alien plant invasion that are expected to exacerbate further. Once known for their harsh climate, diverse habitats, varied environmental conditions and limited accessibility, the Indian Himalayan region (IHR) is now at high risk due to human interventions, climate change and economic development (Yang et al. 2018a). Despite of rich floral diversity and vulnerability to changing scenario, minuscule efforts have been attempted to inventorize, predict and map the alien flora of IHR. Thus, documentation of the alien flora of the region is called for to develop management strategies. Although a handful of workers such as Pathak et al. (2019) have highlighted the need and importance of studies relating to alien plant invasion in IHR. Further, comprehensive studies on the alien floras exists for some parts of the IHR such as the Kashmir Himalaya (Khuroo et al. 2007; Dar et al. 2018; Haq et al. 2018; Mehraj et al. 2018a,b; Muzafar et al. 2019; Shaheen et al. 2019), Himachal Pradesh (Jaryan et al. 2013; Ahmad et al. 2018), Arunachal Pradesh (Kosaka et al. 2010), and its adjoining hilly regions of Assam (Barua et al. 2013), West Bengal (Maiti & Bakshi 1981), Manipur (Khomdram et al. 2011) and Tripura (Debnath et al. 2017; Debnath & Debnath 2017). Unfortunately, a detailed inventory of alien plants is still lacking for the state of Uttarakhand. As a Himalayan biodiversity hotspot, the mountainous state has been invaded by several alien plant species. Notably, a few studies at regional level have been conducted such as Negi & Hajra (2007) listed 436 alien plant species of Doon valley, and Sekar et al. (2012) documented a total of 163 invasive alien plant species in Uttarakhand. In spite of the fact that only a small percentage of alien plants have the potential to become invasive, the damage they incur is irreparable. Thus, a detailed inventory documenting alien plants, including naturalized as well as invasives, for the entire Indian Himalayan region in general and the state of Uttarakhand specifically is not yet available. The objective of this communication is to present a checklist of alien plants for Uttarakhand, and highlight the significance of studies carried out on alien plant species in the Indian Himalayan region.

MATERIAL AND METHODS

Study area

The state of Uttarakhand is largely mountainous and shares international boundaries with China in the north and Nepal in the east. With an area of 53,483 km², the state lies between 30.0668°N & 79.0193°E. Nested in the western Himalaya, Uttarakhand varies greatly in terms of altitude, climate and topography. This variation has resulted in the successful establishment of diverse flora that comprises approximately 5,000 vascular plant species in the state (Rana & Rawat 2017) including alien plant species. According to Champion & Seth (1968) and India State of Forest Report (2019), the state comprises of eight forest types, viz., tropical moist deciduous, tropical dry deciduous, sub-tropical Himalayan pine forests, Himalayan moist temperate, Himalayan dry temperate, sub-alpine forests, moist alpine scrub, and dry alpine scrub. The elevation ranges between 210–7,817m with glaciers at the highest elevation to tropical forests at the lower elevations. The average annual precipitation ranges 1,000–2,500 mm (Kala 2014) and temperature ranges from sub-zero to 43 °C (India State of Forest Report 2009).

Data collection

An extensive review of existing information in the form of scientific research articles, online database, books, reports, and thesis dealing with alien plant research and inventories were examined. Indian herbaria such as the Botanical Survey of India (BSD), Dehradun, Forest Research Institute (DD), Dehradun and Wildlife Institute of India (WII), Dehradun were consulted to validate the species. The listing of alien plant species was enriched by collating information from existing flora and relevant scientific literature on the state, such as Hajra & Balodi (1995), Gaur (1999), Singh & Prakash (2002), Uniyal et al. (2007), Negi & Hajra (2007), Reddy (2008), Sekar et al. (2012), Jaryan et al. (2013), Sankaran & Suresh (2013), Rana & Rawat (2017), Inderjit et al. (2018), and Pusalkar & Srivastava (2018) to name a few. Thus, the extensive review of these studies resulted in a master list comprising of the plant species which are alien to the state of Uttarakhand along with information on their nativity and life form. The authenticity of the plants occurring in the state and their growth form was also determined using regional floras or checklists such as Kanjilal (1928), Babu (1977), Osmaston (1994), Hajra & Balodi (1995), Gaur (1999), Singh & Prakash (2002), Uniyal et al. (2007), and Pusalkar & Srivastava (2018). Further, the plant names and family were rechecked

using 'Plants of the World online (POWO)' (www.theplantsoftheworldonline.org), the Plant List (www.theplantlist.org), and Tropicos (www.tropicos.org). Elimination of the synonyms was done to avoid the taxonomic inflation. The nativity of the plant species was established following POWO; International Plant Names Index (www.ipni.org), Khuroo et al. (2007), Negi & Hajra (2007), and Jaryan et al. (2012). The nativity of the species was further categorized at the continent level or geographical regions such as Africa, America (includes plant species occurring in Central or Tropical North and South America), North America (NAM), South America (SAM), Asia (excluding the Indian sub-continent, i.e., countries such as Bangladesh, Bhutan, India, Maldives, Nepal, Pakistan, and Sri Lanka), Australia, Europe, and Oceania. This resulted in the generation of a complete and updated list of the alien plant species that are reported in the state of Uttarakhand, located in the western Himalaya (Table 1).

RESULTS

A total of 728 alien plant species belonging to 450 genera under 108 families were noted in Uttarakhand (Table 1), representing 15% of total floral species. The most diverse families contributing to alien flora are Fabaceae (89 species), Asteraceae (63 species), Poaceae (50 species), Solanaceae (31 species), Malvaceae (29 species), Amaranthaceae (28 species), Myrtaceae (25 species), Euphorbiaceae (24 species), Brassicaceae (22 species), Cupressaceae (21 species), Rosaceae (19 species), Convolvulaceae (16 species), Lamiaceae (15 species), Apocynaceae (14 species), Bignoniaceae (13 species), Pinaceae, & Rubiaceae (11 species each), Arecaceae & Cyperaceae (10 species each), which accounts 68% of the total alien flora of the Uttarakhand (Table 2). Seventeen genera account for majority of alien plant species, viz., *Eucalyptus* (15 species), *Ipomoea* and *Euphorbia* (12 species each), *Pinus* (11 species), *Acacia*, *Hibiscus*, *Solanum*, & *Juniperus* (08 species each), *Amaranthus* & *Senna* (07 species each), *Brassica* & *Indigofera* (06 species each), *Alternanthera*, *Cupressus*, *Bauhinia*, *Rosa*, *Trifolium*, & *Prunus* (05 species each). Herbs (338 species) account for 46% of alien taxa of Uttarakhand, followed by trees (197 species; 27%), shrubs (91 species; 12%), grasses (50 species; 7%), climbers (42 species; 6%), and sedge (10 species; 1%) (Figure 1). The highest number of species (62) among herbs belonged to Asteraceae, trees in Fabaceae (41), shrubs in Solanaceae (11 species), grasses in Poaceae

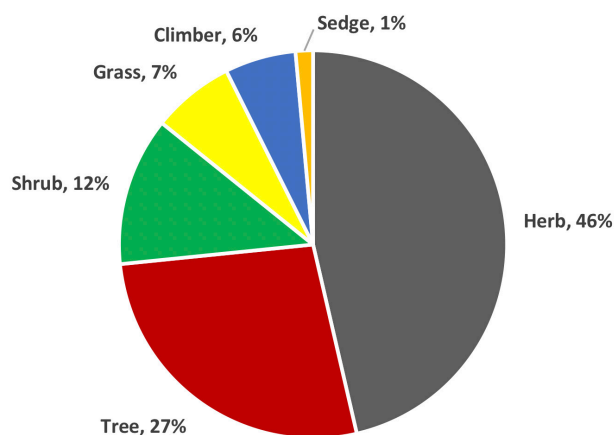


Figure 1. Life form categorization of alien plant species.

(50), climbers in Convolvulaceae (9), and sedges in Cyperaceae (10 species) (Table 2).

With respect to nativity, America (plant species occurring in central or tropical, North, and South America) contributed the maximum (146 species), i.e., 20% of alien introductions in Uttarakhand, followed by Europe 104 species (14%), South America 91 species (13%), Asia (excluding the Indian sub-continent) 80 species (11%), North America 79 species (11%), and Africa 76 species (10%) (Table 3). The remaining 20% of the alien plant species were contributed by other continents or geographical regions. Notably, majority of the herbs were introduced from America (Table 3). Interestingly, a few workers have provided an account on the status of naturalized and invasive alien plants in different regions of IHR, the details are provided in Table 4.

DISCUSSION

Uttarakhand harbours a rich diversity of natural resources. Several workers (Kala & Rawat 2004; Uniyal et al. 2007; Mathur & Joshi 2013; Rai et al. 2017) have explored the rich floral diversity of this Himalayan state. Several studies have estimated aliens in different regions of India, for instance, Nayar (1977) reported that 18% of the Indian flora comprise of alien plant species. Khuroo et al. (2007) reported a total of 571 alien plant species (29%) from the Kashmir Himalaya. Jaryan et al. (2013) estimated that almost 14% of the flora of Himachal Pradesh comprises of alien plant species. Inderjit et al. (2018) documented naturalized alien plant species in the Indian states and found 181 alien species that have naturalized in Uttarakhand. According to Dutta (2018),

climate change accelerates alien species invasion whereby a number of non-invasive species may become invasive. Negi et al. (2019) reported that increased level of demographic transitions and climate change will further exaggerate the situation in IHR, thus enabling suitable conditions for the spread of invasive alien species.

Of 108 plant families reported, 20 families comprise more than 68% of the alien flora of the state. Sekar et al. (2012) also reported Fabaceae as the largest family in terms of IAs in Uttarakhand. Reddy (2008) reported that Asteraceae also contributed a major portion of exotics in India. Khuroo et al. (2007) and Jaryan et al. (2013) also reported the dominance of Asteraceae and Poaceae from the Himachal Pradesh and Kashmir Himalaya, respectively. Subsequently, Baard & Kraaij (2014) in South Africa and Shen et al. (2017) in Yunnan province of China reported dominance of Asteraceae followed by Fabaceae and Poaceae that accounts for majority of the alien flora. Categorization of the growth form showed the preponderance of herbs (46%) which may be associated with its short generation time, greater viability and the ability to tolerate wide environmental fluctuations. Interestingly, this is in agreement with the other studies (Khuroo et al. 2007; Reddy 2008; Sekar et al. 2012; Adhikhari et al. 2015; Rastogi et al. 2015; Inderjit et al. 2018) carried out in India as well as in the world (Baard & Kraaij 2014; Shen et al. 2017; Lee et al. 2018; Vinogradova et al. 2018).

A large number of aliens in Uttarakhand are reported from America, accounting for the majority of herbs. A majority of alien introductions in China (Weber et al. 2008) and India (35%) (Khuroo et al. 2012), specifically in Himachal Pradesh (23%) (Jaryan et al. 2013) are from South America, while Europe contributes the highest percentage (38%) of alien species in Kashmir (Khuroo et al. 2007). The prevalence of genera such as *Eucalyptus*, *Ipomoea*, *Euphorbia*, *Pinus*, *Acacia*, *Juniperus*, *Amaranthus*, *Hibiscus*, and *Solanum* is observed in Uttarakhand, which is in accordance with the studies carried out in India (Khuroo et al. 2012), Himachal Pradesh (Jaryan et al. 2013). A report of comparatively higher number of alien plant species (728) in Uttarakhand could be attributed due to higher species richness (ca. 5,000) and lack of persuaded literature exclusively on alien plant species in other Himalayan states.

Table 1. List of alien plant species reported in Uttarakhand, western Himalaya.

	Name of the species	Family	Nativity	Life form	Reference
1	<i>Abelmoschus esculentus</i> (L.) Moench	Malvaceae	AS/AF	Herb	Khuroo et al. (2007); Negi & Hajra (2007)
2	<i>Acacia auriculiformis</i> A. Cunn. ex Benth.	Fabaceae	AU	Tree	Negi & Hajra (2007)
3	<i>Acacia confusa</i> Merr.	Fabaceae	AS (Philippines)	Tree	Negi & Hajra (2007)
4	<i>Acacia dealbata</i> Link	Fabaceae	AU	Tree	Sekar et al. (2012)
5	<i>Acacia decurrens</i> Willd.	Fabaceae	AU	Tree	Jaryan et al. (2013)
6	<i>Acacia farnesiana</i> (L.) Willd.	Fabaceae	SAM	Tree	Sekar et al. (2012)
7	<i>Acacia karroo</i> Hayne	Fabaceae	AF (South Africa)	Tree	Negi & Hajra (2007)
8	<i>Acacia robusta</i> Burch.	Fabaceae	AF (South Africa)	Tree	Negi & Hajra (2007)
9	<i>Acacia willdenowiana</i> Wendl.	Fabaceae	AF (South Africa)	Tree	Negi & Hajra (2007)
10	<i>Acalypha australis</i> L.	Euphorbiaceae	AS (China, Japan)	Herb	Negi & Hajra (2007)
11	<i>Acanthospermum hispidum</i> DC.	Asteraceae	SAM (Brazil)	Herb	Negi & Hajra (2007); Sekar et al. (2012)
12	<i>Acer negundo</i> L.	Sapindaceae	NAM	Tree	Jaryan et al. (2013)
13	<i>Achillea millefolium</i> L.	Asteraceae	EU	Herb	Khuroo et al. (2007); Jaryan et al. (2013)
14	<i>Acnema radicans</i> (Jacq.) R.K. Jansen	Asteraceae	SAM	Herb	Rana & Rastogi (2017)
15	<i>Aconitum laeve</i> Royle	Ranunculaceae	EU	Herb	Khuroo et al. (2007); Jaryan et al. (2013)
16	<i>Adonis aestivalis</i> L.	Ranunculaceae	EU	Herb	Khuroo et al. (2007); Jaryan et al. (2013)
17	<i>Aerva sanguinolenta</i> (L.) Blume	Amaranthaceae	AF	Herb	Singh & Prakash (2002)
18	<i>Aeschynomene brasiliana</i> (Poir.) DC.	Fabaceae	NAM (Mexico)	Shrub	Negi & Hajra (2007)
19	<i>Afrocarpus gracilior</i> (Pilg.) C.N. Page	Podocarpaceae	AF (Kenya)	Tree	Tiwari et al. (2010)
20	<i>Azadirachta indica</i> (Jacq.) J. Leonard	Fabaceae	AS (Burma)	Tree	Negi & Hajra (2007)
21	<i>Agathis robusta</i> (C. Moore ex F. Muell.) F.M. Bailey	Araucariaceae	AU/SAM (Brazil)	Tree	Negi & Hajra (2007); Tiwari et al. (2010)
22	<i>Agave americana</i> L.	Asparagaceae	America	Shrub	Negi & Hajra (2007)
23	<i>Ageratina adenophora</i> (Spreng.) R.M. King & H. Rob.	Asteraceae	SAM/NAM (Mexico)	Herb	Negi & Hajra (2007); Sekar et al. (2012); Jaryan et al. (2013)
24	<i>Ageratina riparia</i> (Regel) R.M. King & H. Rob.	Asteraceae	NAM (Mexico, West Indies)	Herb	Negi & Hajra (2007)
25	<i>Ageratum conyzoides</i> (L.) L.	Asteraceae	Trop. America/SAM	Herb	Khuroo et al. (2007); Negi & Hajra (2007); Sekar et al. (2012)
26	<i>Ageratum houstonianum</i> Mill.	Asteraceae	Trop. America	Herb	Sekar et al. (2012)
27	<i>Agrostis canina</i> L.	Poaceae	EU	Grass	Khuroo et al. (2007); Jaryan et al. (2013)
28	<i>Agrostis stolonifera</i> L.	Poaceae	NAM	Grass	Khuroo et al. (2007); Jaryan et al. (2013)
29	<i>Ailanthus altissima</i> (Mill.) Swingle	Simaroubaceae	AS (China)	Tree	Khuroo et al. (2007) Negi & Hajra (2007); Jaryan et al. (2013)
30	<i>Alcea rosea</i> L.	Malvaceae	AS	Herb	Khuroo et al. (2007); Jaryan et al. (2013)
31	<i>Alisma lanceolatum</i> With.	Alismataceae	AF/NAM	Herb	Khuroo et al. (2007); Jaryan et al. (2013)
32	<i>Allamanda cathartica</i> L.	Apocynaceae	Trop. America/SAM (Brazil)	Climber	Negi & Hajra (2007)
33	<i>Alliaria petiolata</i> (M. Bieb.) Cavara & Grande	Brassicaceae	EU	Herb	Sankaran & Suresh (2013)
34	<i>Allium ampeloprasum</i> L.	Amaryllidaceae	AS/EU	Herb	Khuroo et al. (2007)
35	<i>Allium cepa</i> L.	Amaryllidaceae	AS	Herb	Khuroo et al. (2007); Jaryan et al. (2013)
36	<i>Allium sativum</i> L.	Amaryllidaceae	EU	Herb	Khuroo et al. (2007); Jaryan et al. (2013)
37	<i>Allocasuarina littoralis</i> (Salisb.) L.A.S. Johnson	Casuarinaceae	AU	Tree	Negi & Hajra (2007)
38	<i>Aloe vera</i> (L.) Burm.f.	Xanthorrhoeaceae	Mediterranean/AF/EU	Herb	Khuroo et al. (2007)
39	<i>Alopecurus aequalis</i> Sobol.	Poaceae	NAM	Grass	Khuroo et al. (2007); Jaryan et al. (2013)
40	<i>Alopecurus arundinaceus</i> Poir.	Poaceae	EU	Grass	Khuroo et al. (2007); Jaryan et al. (2013)
41	<i>Alternanthera ficoidea</i> (L.) Sm.	Amaranthaceae	SAM (Brazil)	Herb	Negi & Hajra (2007)
42	<i>Alternanthera paronychioides</i> A. St.-Hil.	Amaranthaceae	Trop. America	Herb	Sekar et al. (2012)
43	<i>Alternanthera philoxeroides</i> (Mart.) Griseb.	Amaranthaceae	Trop. America	Herb	Negi & Hajra (2007); Sekar et al. (2012)
44	<i>Alternanthera pungens</i> Kunth	Amaranthaceae	Trop. America	Herb	Negi & Hajra (2007); Sekar et al. (2012)

	Name of the species	Family	Nativity	Life form	Reference
45	<i>Alternanthera sessilis</i> (L.) R.Br. ex DC.	Amaranthaceae	SAM	Herb	Negi & Hajra (2007); Sekar et al. (2012)
46	<i>Amaranthus blitum</i> subsp. <i>oleraceus</i> (L.) Costea	Amaranthaceae	AS/AF/SAM	Herb	Jaryan et al. (2013)
47	<i>Amaranthus caudatus</i> L.	Amaranthaceae	SAM	Herb	Khuroo et al. (2007); Negi & Hajra (2007); Jaryan et al. (2013)
48	<i>Amaranthus cruentus</i> L.	Amaranthaceae	NAM/SAM	Herb	Khuroo et al. (2007); Negi & Hajra (2007); Jaryan et al. (2013)
49	<i>Amaranthus graecizans</i> L.	Amaranthaceae	EU	Herb	Khuroo et al. (2007)
50	<i>Amaranthus hybridus</i> L.	Amaranthaceae	NAM/SAM	Herb	Khuroo et al. (2007)
51	<i>Amaranthus spinosus</i> L.	Amaranthaceae	Trop. America/SAM	Herb	Khuroo et al. (2007); Sekar et al. (2012)
52	<i>Amaranthus viridis</i> L.	Amaranthaceae	SAM	Herb	Singh & Prakash (2002)
53	<i>Anagallis arvensis</i> L.	Primulaceae	EU	Herb	Khuroo et al. (2007); Sekar et al. (2012)
54	<i>Anethum graveolens</i> L.	Apiaceae	AS/EU	Herb	Khuroo et al. (2007); Negi & Hajra (2007); Jaryan et al. (2013)
55	<i>Annona reticulata</i> L.	Annonaceae	Trop. America	Tree	Negi & Hajra (2007)
56	<i>Annona squamosa</i> L.	Annonaceae	EU/SAM	Tree	Jaryan et al. (2013)
57	<i>Anthemis cotula</i> L.	Asteraceae	EU/AS	Herb	Khuroo et al. (2007); Negi & Hajra (2007); Jaryan et al. (2013)
58	<i>Antigonon leptopus</i> Hook. & Arn.	Polygonaceae	Trop. America	Climber	Negi & Hajra (2007); Sekar et al. (2012)
59	<i>Antirrhinum majus</i> L.	Plantaginaceae	EU/AS (Syria)/America	Herb	Khuroo et al. (2007); Negi & Hajra (2007)
60	<i>Apium graveolens</i> L.	Apiaceae	EU	Herb	Negi & Hajra (2007); Jaryan et al. (2013)
61	<i>Arabidopsis thaliana</i> (L.) Heynh.	Brassicaceae	AF/EU	Herb	Khuroo et al. (2007); Jaryan et al. (2013)
62	<i>Arachis hypogaea</i> L.	Fabaceae	SAM	Herb	Khuroo et al. (2007)
63	<i>Araucaria angustifolia</i> (Bertol.) Kuntze	Araucariaceae	SAM (Brazil)	Tree	Negi & Hajra (2007); Tiwari et al. (2010)
64	<i>Araucaria bidwillii</i> Hook.	Araucariaceae	AU	Tree	Negi & Hajra (2007); Tiwari et al. (2010)
65	<i>Araucaria columnaris</i> (G. Forst.) Hook.	Araucariaceae	Oceania (New Caledonia)	Tree	Negi & Hajra (2007); Tiwari et al. (2010)
66	<i>Araucaria cunninghamii</i> Mudie	Araucariaceae	AU	Tree	Negi & Hajra (2007); Tiwari et al. (2010)
67	<i>Arctium lappa</i> L.	Asteraceae	EU	Herb	Khuroo et al. (2007); Jaryan et al. (2013)
68	<i>Argemone mexicana</i> L.	Papaveraceae	SAM/NAM (West Indies)	Herb	Negi & Hajra (2007); Sekar et al. (2012)
69	<i>Argemone ochroleuca</i> Sweet	Papaveraceae	SAM/NAM (Mexico)	Herb	Negi & Hajra (2007); Sekar et al. (2012)
70	<i>Aristolochia littoralis</i> Parodi	Aristolochiaceae	SAM	Herb	Negi & Hajra (2007)
71	<i>Artemisia absinthium</i> L.	Asteraceae	EU	Herb	Khuroo et al. (2007); Jaryan et al. (2013)
72	<i>Artemisia dracunculus</i> L.	Asteraceae	EU	Herb	Khuroo et al. (2007); Jaryan et al. (2013)
73	<i>Artemisia gmelinii</i> Weber ex Stechm.	Asteraceae	EU	Herb	Khuroo et al. (2007); Jaryan et al. (2013)
74	<i>Arthraxon lancifolius</i> (Trin.) Hochst.	Poaceae	AF	Grass	Khuroo et al. (2007); Jaryan et al. (2013)
75	<i>Arundo donax</i> L.	Poaceae	Eurasia/AF/EU	Grass	Khuroo et al. (2007); Jaryan et al. (2013); Sankaran & Suresh (2013)
76	<i>Asclepias curassavica</i> L.	Apocynaceae	Trop. America/SAM	Herb	Negi & Hajra (2007); Sekar et al. (2012); Jaryan et al. (2013)
77	<i>Asphodelus tenuifolius</i> Cav.	Xanthorrhoeaceae	SAM	Herb	Sekar et al. (2012); Jaryan et al. (2013)
78	<i>Atriplex hortensis</i> L.	Amaranthaceae	EU	Herb	Khuroo et al. (2007); Jaryan et al. (2013)
79	<i>Avena barbata</i> Pott ex Link	Poaceae	EU	Grass	Khuroo et al. (2007)
80	<i>Avena fatua</i> L.	Poaceae	EU	Grass	Khuroo et al. (2007); Jaryan et al. (2013)
81	<i>Avena sativa</i> L.	Poaceae	AS/EU	Grass	Jaryan et al. (2013)
82	<i>Bambusa vulgaris</i> Schrad.	Poaceae	NA	Grass	Negi & Hajra (2007)
83	<i>Bassia scoparia</i> (L.) A.J. Scoot	Amaranthaceae	EU/AS	Herb	Khuroo et al. (2007)
84	<i>Bauhinia carronii</i> F.Muell.	Fabaceae	AU	Tree	Negi & Hajra (2007)
85	<i>Bauhinia corymbosa</i> Roxb.	Fabaceae	AS (China)	Climber	Negi & Hajra (2007)
86	<i>Bauhinia galpinii</i> N.E.Br.	Fabaceae	AF (South Africa)	Shrub	Negi & Hajra (2007)
87	<i>Bauhinia hookeri</i> F. Muell.	Fabaceae	AU	Tree	Negi & Hajra (2007)
88	<i>Bauhinia picta</i> (Kunth) DC.	Fabaceae	SAM (Colombia)	Tree	Negi & Hajra (2007)
89	<i>Beaucarnea stricta</i> Lem.	Asparagaceae	NAM (Mexico)	Tree	Negi & Hajra (2007)

	Name of the species	Family	Nativity	Life form	Reference
90	<i>Bellis perennis</i> L.	Asteraceae	EU	Herb	Khuroo et al. (2007); Jaryan et al. (2013)
91	<i>Beta vulgaris</i> L.	Amaranthaceae	EU/SAM	Herb	Jaryan et al. (2013)
92	<i>Bidens biternata</i> (Lour.) Merr. & Sherff	Asteraceae	NAM	Herb	Khuroo et al. (2007)
93	<i>Bidens cernua</i> L.	Asteraceae	EU/NAM	Herb	Khuroo et al. (2007); Jaryan et al. (2013)
94	<i>Bidens pilosa</i> L.	Asteraceae	Trop. America/SAM	Herb	Sekar et al. (2012); Jaryan et al. (2013)
95	<i>Bidens tripartita</i> L.	Asteraceae	AF/EU	Herb	Khuroo et al. (2007); Jaryan et al. (2013)
96	<i>Bixa orellana</i> L.	Bixaceae	SAM (Brazil)	Tree	Negi & Hajra (2007)
97	<i>Blainvillea acmella</i> (L.) Philipson	Asteraceae	Trop. America/SAM	Herb	Sekar et al. (2012); Jaryan et al. (2013)
98	<i>Blumea eriantha</i> DC.	Asteraceae	Trop. America	Herb	Sekar et al. (2012)
99	<i>Blumea lacera</i> (Burm. f.) DC.	Asteraceae	Trop. America/SAM	Herb	Sekar et al. (2012); Jaryan et al. (2013)
100	<i>Blumea obliqua</i> (L.) Druce	Asteraceae	Trop. America/SAM	Herb	Sekar et al. (2012); Jaryan et al. (2013)
101	<i>Boerhavia erecta</i> L.	Nyctaginaceae	Trop. America	Herb	Negi & Hajra (2007)
102	<i>Bolusanthus speciosus</i> (Bolos) Harms	Fabaceae	AF (South Africa)	Tree	Negi & Hajra (2007)
103	<i>Borassus flabellifer</i> L.	Arecaceae	AF	Tree	Sekar et al. (2012)
104	<i>Bothriochloa ischaemum</i> (L.) Keng	Poaceae	AF	Grass	Khuroo et al. (2007); Jaryan et al. (2013)
105	<i>Bougainvillea glabra</i> Choisy	Nyctaginaceae	SAM (Brazil)	Climber	Khuroo et al. (2007); Negi & Hajra (2007)
106	<i>Bougainvillea spectabilis</i> Willd.	Nyctaginaceae	SAM (Brazil)	Climber	Khuroo et al. (2007); Negi & Hajra (2007)
107	<i>Brachychiton acerifolius</i> (A. Cunn. ex G. Don) F. Muell.	Malvaceae	Oceania	Tree	Negi & Hajra (2007)
108	<i>Brachychiton rupestris</i> (T. Mitch. ex Lindl.) K. Schum.	Malvaceae	AU	Tree	Negi & Hajra (2007)
109	<i>Brassica cretica</i> Lam.	Brassicaceae	EU	Herb	Khuroo et al. (2007)
110	<i>Brassica juncea</i> (L.) Czern.	Brassicaceae	AS	Herb	Negi & Hajra (2007)
111	<i>Brassica napus</i> L.	Brassicaceae	EU	Herb	Khuroo et al. (2007); Jaryan et al. (2013)
112	<i>Brassica nigra</i> (L.) K. Koch	Brassicaceae	EU	Herb	Khuroo et al. (2007); Jaryan et al. (2013)
113	<i>Brassica oleracea</i> L.	Brassicaceae	EU	Herb	Khuroo et al. (2007); Negi & Hajra (2007); Jaryan et al. (2013)
114	<i>Brassica rapa</i> L.	Brassicaceae	EU/Mediterranean region	Herb	Khuroo et al. (2007); Negi & Hajra (2007)
115	<i>Breynia vitis-idaea</i> (Burm.f.) C.E.C. Fisch.	Phyllanthaceae	NAM (West Indies)	Shrub	Negi & Hajra (2007)
116	<i>Briza media</i> L.	Poaceae	EU	Grass	Khuroo et al. (2007); Jaryan et al. (2013)
117	<i>Bromus catharticus</i> Vahl	Poaceae	SAM	Grass	Khuroo et al. (2007); Sekar et al. (2012); Jaryan et al. (2013)
118	<i>Bromus inermis</i> Leyss.	Poaceae	EU	Grass	Khuroo et al. (2007); Jaryan et al. (2013); Sankaran & Suresh (2013)
119	<i>Bromus japonicus</i> Thunb.	Poaceae	EU	Grass	Khuroo et al. (2007); Jaryan et al. (2013)
120	<i>Bromus tectorum</i> L.	Poaceae	Mediterranean region	Grass	Sankaran & Suresh (2013)
121	<i>Brugmansia suaveolens</i> (Humb. & Bonpl. ex Willd.) Bercht. & J. Presl	Solanaceae	SAM (Brazil)	Shrub	Negi & Hajra (2007); Jaryan et al. (2013);
122	<i>Brunfelsia americana</i> L.	Solanaceae	NAM (West Indies)	Shrub	Negi & Hajra (2007)
123	<i>Brunfelsia densifolia</i> Krug & Urb.	Solanaceae	Trop. America	Tree	Negi & Hajra (2007)
124	<i>Brunfelsia latifolia</i> (Pohl) Benth.	Solanaceae	SAM (Brazil)	Shrub	Negi & Hajra (2007)
125	<i>Brunfelsia pauciflora</i> (Cham. & Schltdl.) Benth.	Solanaceae	Trop. America	Shrub	Negi & Hajra (2007)
126	<i>Buddleja davidii</i> Franch.	Scrophulariaceae	AS (China)	Shrub	Khuroo et al. (2007); Jaryan et al. (2013); Sankaran & Suresh (2013)
127	<i>Buddleja madagascariensis</i> Lam.	Scrophulariaceae	AS	Shrub	Jaryan et al. (2013)
128	<i>Buxus sempervirens</i> L.	Buxaceae	AS/AF/EU	Shrub	Khuroo et al. (2007)
129	<i>Byrsonima crassifolia</i> (L.) Kunth	Malpighiaceae	NAM (Mexico)	Tree	Negi & Hajra (2007)
130	<i>Caesalpinia ferrea</i> C.Mart.	Fabaceae	SAM (Brazil)	Tree	Negi & Hajra (2007)
131	<i>Caesalpinia pulcherrima</i> (L.) Sw.	Fabaceae	SAM (Brazil)	Shrub	Negi & Hajra (2007); Jaryan et al. (2013)
132	<i>Calendula officinalis</i> L.	Asteraceae	EU	Herb	Khuroo et al. (2007)
133	<i>Calliandra brevipes</i> Benth.	Fabaceae	SAM (Brazil)	Shrub	Negi & Hajra (2007)
134	<i>Calliandra haematocephala</i> Hassk.	Mimosaceae	NAM (Mexico)	Shrub	Negi & Hajra (2007)
135	<i>Calliandra houstoniana</i> (Mill.) Standl.	Fabaceae	NAM (Mexico)	Tree	Negi & Hajra (2007)

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136	<i>Callistemon citrinus</i> (Curtis) Skeels	Myrtaceae	AU	Tree	Negi & Hajra (2007)
137	<i>Callistemon viminalis</i> (Sol. ex Gaertn.) G. Don ex Loudon	Myrtaceae	AU	Tree	Negi & Hajra (2007); Jaryan et al. (2013);
138	<i>Callitris columellaris</i> F. Muell.	Cupressaceae	AU	Tree	Negi & Hajra (2007); Tiwari et al. (2010)
139	<i>Calotropis gigantea</i> (L.) Dryand.	Apocynaceae	AF	Shrub	Sekar et al. (2012); Jaryan et al. (2013)
140	<i>Calotropis procera</i> (Aiton) Dryand.	Apocynaceae	AF	Shrub	Sekar et al. (2012); Jaryan et al. (2013)
141	<i>Camellia japonica</i> L.	Theaceae	AS (Japan)	Shrub	Negi & Hajra (2007)
142	<i>Campsis grandiflora</i> (Thunb.) K. Schum.	Bignoniaceae	AS	Climber	Khuroo et al. (2007)
143	<i>Campsis radicans</i> (L.) Seem.	Bignoniaceae	NAM	Climber	Khuroo et al. (2007); Negi & Hajra (2007)
144	<i>Canna indica</i> L.	Cannaceae	Trop. America	Herb	Sankaran & Suresh (2013)
145	<i>Capsella bursa-pastoris</i> (L.) Medik.	Brassicaceae	EU	Herb	Khuroo et al. (2007); Jaryan et al. (2013)
146	<i>Capsicum annuum</i> L.	Solanaceae	EU/NAM/SAM	Herb	Jaryan et al. (2013)
147	<i>Cardamine flexuosa</i> With.	Brassicaceae	EU	Herb	Khuroo et al. (2007); Jaryan et al. (2013)
148	<i>Cardamine hirsuta</i> L.	Brassicaceae	Trop. America/EU	Herb	Khuroo et al. (2007); Sekar et al. (2012); Jaryan et al. (2013)
149	<i>Carduus edelbergii</i> Rech.f.	Asteraceae	EU	Herb	Khuroo et al. (2007)
150	<i>Carduus nutans</i> L.	Asteraceae	EU	Herb	Sankaran & Suresh (2013)
151	<i>Carica papaya</i> L.	Caricaceae	SAM/Trop. America	Tree	Negi & Hajra (2007); Jaryan et al. (2013)
152	<i>Cascabela thevetia</i> (L.) Lippold	Apocynaceae	SAM	Tree	Negi & Hajra (2007); Jaryan et al. (2013)
153	<i>Casimiroa edulis</i> La Llave	Rutaceae	NAM (Mexico)	Tree	Negi & Hajra (2007)
154	<i>Castanea sativa</i> Mill.	Fagaceae	AF/EU	Tree	Khuroo et al. (2007); Jaryan et al. (2013)
155	<i>Castanospermum australe</i> A.Cunn. & C.Fraser	Fabaceae	AU	Tree	Negi & Hajra (2007)
156	<i>Casuarina cunninghamiana</i> Miq.	Casuarinaceae	AU	Tree	Negi & Hajra (2007)
157	<i>Catharanthus pusillus</i> (Murray) G. Don	Apocynaceae	SAM	Herb	Sekar et al. (2012); Jaryan et al. (2013)
158	<i>Catharanthus roseus</i> (L.) G. Don	Apocynaceae	AF (Madagascar)/ NAM (West Indies)	Herb	Singh & Prakash (2002); Negi & Hajra (2007)
159	<i>Ceiba speciosa</i> (A.St.-Hil.) Ravenna	Malvaceae	NAM/SAM (Brazil)	Tree	Negi & Hajra (2007)
160	<i>Celosia argentea</i> L.	Amaranthaceae	SAM	Herb	Khuroo et al. (2007); Sekar et al. (2012); Jaryan et al. (2013)
161	<i>Celtis sinensis</i> Pers.	Cannabaceae	AS (China)	Tree	Negi & Hajra (2007)
162	<i>Cephalotaxus harringtonii</i> (Knight ex J. Forbes) K. Koch	Taxaceae	AS (Japan)	Tree	Negi & Hajra (2007); Tiwari et al. (2010)
163	<i>Cerastium glomeratum</i> Thuill.	Caryophyllaceae	EU	Herb	Khuroo et al. (2007); Jaryan et al. (2013);
164	<i>Ceratophyllum demersum</i> L.	Ceratophyllaceae	NAM	Herb	Khuroo et al. (2007); Sekar et al. (2012); Jaryan et al. (2013)
165	<i>Cestrum nocturnum</i> L.	Solanaceae	NAM (West Indies)	Shrub	Negi & Hajra (2007); Jaryan et al. (2013)
166	<i>Cestrum parqui</i> (Lam.) L'Hér.	Solanaceae	Central and SAM	Shrub	Sankaran & Suresh (2013)
167	<i>Chamaecrista absus</i> (L.) H.S. Irwin & Barneby	Fabaceae	SAM	Herb	Sekar et al. (2012); Jaryan et al. (2013)
168	<i>Chamaecrista pumila</i> (Lam.) K. Larsen	Fabaceae	SAM	Herb	Sekar et al. (2012); Jaryan et al. (2013)
169	<i>Chamaerops humilis</i> L.	Arecaceae	EU	Shrub	Negi & Hajra (2007)
170	<i>Chenopodium album</i> L.	Amaranthaceae	EU	Herb	Khuroo et al. (2007); Sekar et al. (2012); Jaryan et al. (2013)
171	<i>Chenopodium hybridum</i> L.	Amaranthaceae	AS/EU	Herb	Khuroo et al. (2007); Jaryan et al. (2013)
172	<i>Chenopodium murale</i> L.	Amaranthaceae	Trop. America/AF/EU	Herb	Khuroo et al. (2007); Sekar et al. (2012); Jaryan et al. (2013)
173	<i>Chenopodium opulifolium</i> Schrad. ex W.D.J. Koch & Ziz	Amaranthaceae	EU	Herb	Khuroo et al. (2007); Jaryan et al. (2013)
174	<i>Chloris barbata</i> Sw.	Poaceae	Trop. America	Grass	Sekar et al. (2012)
175	<i>Chloris gayana</i> Kunth.	Poaceae	AF	Grass	Khuroo et al. (2007)
176	<i>Chromolaena odorata</i> (L.) R.M. King & H. Rob.	Asteraceae	Trop. America/SAM	Herb	Negi & Hajra (2007); Srivastava et al. (2014)
177	<i>Chrysophyllum oliviforme</i> L.	Sapotaceae	Trop. America	Tree	Negi & Hajra (2007)
178	<i>Cicer arietinum</i> L.	Fabaceae	AS/EU	Herb	Jaryan et al. (2013)
179	<i>Cinnamomum camphora</i> (L.) J. Presl	Lauraceae	AS (China)	Tree	Negi & Hajra (2007); Jaryan et al. (2013)

	Name of the species	Family	Nativity	Life form	Reference
180	<i>Cissampelos pareira</i> L.	Menispermaceae	SAM	Climber	Jaryan et al. (2013)
181	<i>Citrullus lanatus</i> (Thunb.) Matsum. & Nakai	Cucurbitaceae	SAM	Climber	Jaryan et al. (2013)
182	<i>Citrus reticulata</i> Blanco	Rutaceae	AS	Tree	Khuroo et al. (2007)
183	<i>Cleome gynandra</i> L.	Cleomaceae	Trop. America	Herb	Sekar et al. (2012)
184	<i>Cleome viscosa</i> L.	Cleomaceae	Trop. America	Herb	Sekar et al. (2012)
185	<i>Clerodendrum splendens</i> G.Don	Lamiaceae	AF (Angola)	Climber	Negi & Hajra (2007); Srivastava et al. (2014)
186	<i>Clitoria ternatea</i> L.	Fabaceae	EU/SAM	Herb	Jaryan et al. (2013)
187	<i>Consolida ajacis</i> (L.) Schur	Ranunculaceae	EU	Herb	Negi & Hajra (2007); Jaryan et al. (2013)
188	<i>Convolvulus arvensis</i> L.	Convolvulaceae	EU	Herb	Khuroo et al. (2007); Sekar et al. (2012); Jaryan et al. (2013)
189	<i>Corchorus aestuans</i> L.	Malvaceae	Trop. America/SAM	Herb	Sekar et al. (2012); Jaryan et al. (2013)
190	<i>Corchorus olitorius</i> L.	Malvaceae	AF	Herb	Sekar et al. (2012)
191	<i>Corchorus tridens</i> L.	Malvaceae	AF	Herb	Sekar et al. (2012); Jaryan et al. (2013)
192	<i>Corchorus trilobularis</i> L.	Malvaceae	AF	Herb	Sekar et al. (2012); Jaryan et al. (2013)
193	<i>Cordia africana</i> Lam.	Boraginaceae	AF (Sudan)	Tree	Negi & Hajra (2007)
194	<i>Cordia alba</i> (Jacq.) Roem. & Schult.	Boraginaceae	NAM (Mexico)	Tree	Negi & Hajra (2007)
195	<i>Coreopsis tinctoria</i> Nutt.	Asteraceae	NAM	Herb	Negi & Hajra (2007)
196	<i>Corymbia citriodora</i> (Hook.) K.D. Hill & L.A.S. Johnson	Myrtaceae	AU	Tree	Negi & Hajra (2007)
197	<i>Corymbia maculata</i> (Hook.) K.D. Hill & L.A.S. Johnson	Myrtaceae	AU	Tree	Negi & Hajra (2007)
198	<i>Corymbia torelliana</i> (F.Muell.) K.D. Hill & L.A.S. Johnson	Myrtaceae	AU	Tree	Negi & Hajra (2007)
199	<i>Cosmos bipinnatus</i> Cav.	Asteraceae	SAM	Herb	Jaryan et al. (2013)
200	<i>Crassocephalum crepidioides</i> (Benth.) S. Moore	Asteraceae	Trop. America	Herb	Sekar et al. (2012)
201	<i>Crotalaria pallida</i> Aiton	Fabaceae	Trop. America	Herb	Sekar et al. (2012); Srivastava et al. (2014)
202	<i>Crotalaria retusa</i> L.	Fabaceae	Trop. America	Herb	Sekar et al. (2012)
203	<i>Croton bonplandianus</i> Baill.	Euphorbiaceae	SAM	Herb	Negi & Hajra (2007); Sekar et al. (2012); Jaryan et al. (2013)
204	<i>Cryptomeria japonica</i> (Thunb. ex L.f.) D.Don	Cupressaceae	AS (Japan, China)	Tree	Khuroo et al. (2007); Negi & Hajra (2007); Tiwari et al. (2010); Jaryan et al. (2013)
205	<i>Cucurbita maxima</i> Duchesne	Cucurbitaceae	SAM	Climber	Khuroo et al. (2007); Jaryan et al. (2013)
206	<i>Cucurbita pepo</i> L.	Cucurbitaceae	AF/SAM/NAM	Climber	Khuroo et al. (2007); Jaryan et al. (2013)
207	<i>Cunninghamia lanceolata</i> (Lamb.) Hook.	Cupressaceae	AS (China)	Tree	Negi & Hajra (2007); Tiwari et al. (2010); Jaryan et al. (2013)
208	<i>Cupressus arizonica</i> Greene	Cupressaceae	NAM (Mexico)	Tree	Negi & Hajra (2007); Tiwari et al. (2010)
209	<i>Cupressus funebris</i> Endl.	Cupressaceae	AS (China)	Tree	Negi & Hajra (2007); Tiwari et al. (2010)
210	<i>Cupressus goveniana</i> Gordon	Cupressaceae	NAM (California)	Tree	Negi & Hajra (2007); Tiwari et al. (2010)
211	<i>Cupressus lusitanica</i> Mill.	Cupressaceae	NAM (Mexico)	Tree	Negi & Hajra (2007); Tiwari et al. (2010); Jaryan et al. (2013)
212	<i>Cupressus sempervirens</i> L.	Cupressaceae	EU (Cyprus)	Tree	Khuroo et al. (2007); Negi & Hajra (2007); Tiwari et al. (2010)
213	<i>Cuscuta reflexa</i> Roxb.	Convolvulaceae	Mediterranean region	Herb	Sekar et al. (2012)
214	<i>Cyanus segetum</i> Hill	Asteraceae	Mediterranean region	Herb	Negi & Hajra (2007)
215	<i>Cycas revoluta</i> Thunb.	Cycadaceae	AS (South Japan)	Tree	Negi & Hajra (2007); Tiwari et al. (2010)
216	<i>Cyclanthera pedata</i> (L.) Schrad.	Cucurbitaceae	SAM	Herb	Negi & Hajra (2007)
217	<i>Cyclospermum leptophyllum</i> (Pers.) Sprague	Apiaceae	America/AU	Herb	Negi & Hajra (2007)
218	<i>Cynodon dactylon</i> (L.) Pers.	Poaceae	AF	Grass	Srivastava et al. (2014)
219	<i>Cyperus cyperoides</i> (L.) Kuntze	Cyperaceae	Trop. America	Sedge	Srivastava et al. (2014)
220	<i>Cyperus difformis</i> L.	Cyperaceae	Trop. America/AF/EU	Sedge	Khuroo et al. (2007); Sekar et al. (2012); Jaryan et al. (2013)
221	<i>Cyperus involucratus</i> Rottb.	Cyperaceae	AF	Sedge	Khuroo et al. (2007); Srivastava et al. (2014)
222	<i>Cyperus rotundus</i> L.	Cyperaceae	EU	Sedge	Khuroo et al. (2007); Jaryan et al. (2013)

	Name of the species	Family	Nativity	Life form	Reference
223	<i>Cytisus scoparius</i> (L.) Link	Fabaceae	EU	Herb	Sekar et al. (2012); Jaryan et al. (2013)
224	<i>Dalbergia melanoxylon</i> Guill. & Pers.	Fabaceae	AF (Sudan)	Tree	Negi & Hajra (2007)
225	<i>Datura innoxia</i> Mill.	Solanaceae	Trop. America/NAM/ SAM	Shrub	Khuroo et al. (2007); Sekar et al. (2012); Jaryan et al. (2013)
226	<i>Datura metel</i> L.	Solanaceae	Trop. America/SAM	Shrub	Negi & Hajra (2007); Sekar et al. (2012); Jaryan et al. (2013)
227	<i>Datura stramonium</i> L.	Solanaceae	Trop. America/NAM/ SAM	Shrub	Khuroo et al. (2007); Sekar et al. (2012); Jaryan et al. (2013)
228	<i>Daucus carota</i> L.	Apiaceae	AF/EU	Herb	Khuroo et al. (2007); Jaryan et al. (2013)
229	<i>Deeringia amaranthoides</i> (Lam.) Merr.	Amaranthaceae	AU	Climber	Khuroo et al. (2007); Jaryan et al. (2013)
230	<i>Delonix regia</i> (Hook.) Raf.	Fabaceae	AF (Madagascar)	Tree	Negi & Hajra (2007)
231	<i>Descurainia sophia</i> (L.) Webb ex Prantl	Brassicaceae	AF	Herb	Khuroo et al. (2007); Jaryan et al. (2013)
232	<i>Desmodium tortuosum</i> (Sw.) DC.	Fabaceae	America	Herb	Negi & Hajra (2007)
233	<i>Dichrostachys cinerea</i> (L.) Wight & Arn.	Fabaceae	AF (Congo)	Shrub	Negi & Hajra (2007)
234	<i>Dicliptera paniculata</i> (Forssk.) I.Darbysh.	Acanthaceae	AF/Trop. America	Herb	Sekar et al. (2012)
235	<i>Digitalis lanata</i> Ehrh.	Plantaginaceae	EU	Herb	Khuroo et al. (2007); Jaryan et al. (2013)
236	<i>Digitalis purpurea</i> L.	Plantaginaceae	EU	Herb	Khuroo et al. (2007); Jaryan et al. (2013)
237	<i>Digitaria longiflora</i> (Retz.) Pers.	Poaceae	AF	Grass	Khuroo et al. (2007); Jaryan et al. (2013)
238	<i>Digitaria sanguinalis</i> (L.) Scop.	Poaceae	EU	Grass	Khuroo et al. (2007); Jaryan et al. (2013)
239	<i>Dolichandra unguis-cati</i> (L.) L.G. Lohmann	Bignoniaceae	Trop. America	Climber	Sankaran & Suresh (2013)
240	<i>Dombeya burgessiae</i> Gerrard ex Harv.	Malvaceae	AF	Shrub	Negi & Hajra (2007)
241	<i>Duboisia myoporoides</i> R.Br.	Solanaceae	AU	Tree	Negi & Hajra (2007)
242	<i>Duranta erecta</i> L.	Verbenaceae	NAM (Mexico)	Shrub	Negi & Hajra (2007); Jaryan et al. (2013); Srivastava et al. (2014);
243	<i>Dysphania ambrosioides</i> (L.) Mosyakin & Clemants	Amaranthaceae	SAM	Herb	Khuroo et al. (2007); Negi & Hajra (2007); Sekar et al. (2012)
244	<i>Dysphania botrys</i> (L.) Mosyakin & Clemants	Amaranthaceae	AF/EU	Herb	Khuroo et al. (2007)
245	<i>Echinochloa colona</i> (L.) Link	Poaceae	SAM/EU	Grass	Khuroo et al. (2007); Sekar et al. (2012); Jaryan et al. (2013)
246	<i>Echitesum bellatus</i> Jacq.	Apocynaceae	NAM (Florida)	Climber	Negi & Hajra (2007)
247	<i>Eclipta prostrata</i> L.	Asteraceae	Trop. America/SAM	Herb	Jaryan et al. (2013); Rana & Rastogi (2017)
248	<i>Eichhornia crassipes</i> (Mart.) Solms	Pontederiaceae	Trop. America/SAM	Herb	Sekar et al. (2012); Jaryan et al. (2013)
249	<i>Eleocharis atropurpurea</i> (Retz.) J. Presl & C. Presl	Cyperaceae	SAM	Sedge	Khuroo et al. (2007); Jaryan et al. (2013)
250	<i>Emilia sonchifolia</i> (L.) DC. ex DC.	Asteraceae	Trop. America/SAM	Herb	Sekar et al. (2012); Jaryan et al. (2013)
251	<i>Enterolobium contortisiliquum</i> (Vell.) Morong	Fabaceae	SAM (Brazil)	Tree	Negi & Hajra (2007)
252	<i>Epilobium hirsutum</i> L.	Onagraceae	AF/EU	Herb	Khuroo et al. (2007); Jaryan et al. (2013)
253	<i>Epilobium parviflorum</i> Schreb.	Onagraceae	AF/EU	Herb	Khuroo et al. (2007); Jaryan et al. (2013)
254	<i>Epilobium tetragonum</i> L.	Onagraceae	AF/EU	Herb	Khuroo et al. (2007)
255	<i>Eragrostis pilosa</i> (L.) P.Beauv.	Poaceae	AF	Grass	Khuroo et al. (2007); Jaryan et al. (2013)
256	<i>Erigeron annuus</i> (L.) Pers.	Asteraceae	NAM	Herb	Khuroo et al. (2007); Jaryan et al. (2013)
257	<i>Erigeron bonariensis</i> L.	Asteraceae	SAM	Herb	Khuroo et al. (2007)
258	<i>Erigeron canadensis</i> L.	Asteraceae	SAM/NAM	Herb	Khuroo et al. (2007); Sekar et al. (2012)
259	<i>Erigeron karvinskianus</i> DC.	Asteraceae	SAM/Central America	Herb	Khuroo et al. (2007); Jaryan et al. (2013)
260	<i>Eriobotrya japonica</i> (Thunb.) Lindl.	Rosaceae	AS (Japan, China)	Tree	Khuroo et al. (2007); Jaryan et al. (2013)
261	<i>Erodium cicutarium</i> (L.) L'Hér.	Geraniaceae	AF/EU	Herb	Khuroo et al. (2007); Jaryan et al. (2013)
262	<i>Eruca vesicaria</i> (L.) Cav.	Brassicaceae	EU	Herb	Khuroo et al. (2007); Jaryan et al. (2013)
263	<i>Eryngium foetidum</i> L.	Apiaceae	SAM	Herb	Negi & Hajra (2007)
264	<i>Erysimum hieraciifolium</i> L.f.	Brassicaceae	EU	Herb	Kumar et al. (2013)
265	<i>Eschscholzia californica</i> Cham.	Papaveraceae	NAM	Herb	Khuroo et al. (2007)
266	<i>Eucalyptus alba</i> Reinw. ex Blume	Myrtaceae	AU	Tree	Negi & Hajra (2007)
267	<i>Eucalyptus camaldulensis</i> Dehnh.	Myrtaceae	AU	Tree	Khuroo et al. (2007); Jaryan et al. (2013)

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268	<i>Eucalyptus deglupta</i> Blume	Myrtaceae	AS (Indonesia)	Tree	Negi & Hajra (2007)
269	<i>Eucalyptus drepanophylla</i> F.Muell. ex Benth.	Myrtaceae	AU	Tree	Khuroo et al. (2007); Jaryan et al. (2013)
270	<i>Eucalyptus globulus</i> Labill.	Myrtaceae	AU	Tree	Jaryan et al. (2013)
271	<i>Eucalyptus grandis</i> W.Hill	Myrtaceae	AU	Tree	Negi & Hajra (2007)
272	<i>Eucalyptus microcorys</i> F.Muell.	Myrtaceae	AU	Tree	Negi & Hajra (2007)
273	<i>Eucalyptus paniculata</i> Sm.	Myrtaceae	AU	Tree	Negi & Hajra (2007)
274	<i>Eucalyptus propinqua</i> H.Deane & Maiden	Myrtaceae	AU	Tree	Negi & Hajra (2007)
275	<i>Eucalyptus punctata</i> A.Cunn. ex DC.	Myrtaceae	AU	Tree	Negi & Hajra (2007)
276	<i>Eucalyptus resinifera</i> Sm.	Myrtaceae	AU	Tree	Negi & Hajra (2007)
277	<i>Eucalyptus robusta</i> Sm.	Myrtaceae	AU	Tree	Negi & Hajra (2007)
278	<i>Eucalyptus saligna</i> Sm.	Myrtaceae	AU	Tree	Jaryan et al. (2013);
279	<i>Eucalyptus sideroxylon</i> A.Cunn. ex Woolls	Myrtaceae	AU	Tree	Negi & Hajra (2007)
280	<i>Eucalyptus tereticornis</i> Sm.	Myrtaceae	AU	Tree	Negi & Hajra (2007)
281	<i>Eugenia uniflora</i> L.	Myrtaceae	SAM (Brazil)	Tree	Negi & Hajra (2007)
282	<i>Euphorbia chamaesyce</i> L.	Euphorbiaceae	AF (Mauritius)	Herb	Sekar et al. (2012)
283	<i>Euphorbia cotinifolia</i> L.	Euphorbiaceae	NAM (Mexico)/SAM	Shrub	Negi & Hajra (2007)
284	<i>Euphorbia cyathophora</i> Murray	Euphorbiaceae	Trop. America	Herb	Rana & Rastogi (2017)
285	<i>Euphorbia heterophylla</i> L.	Euphorbiaceae	Trop. America/SAM/ NAM (Mexico)	Herb	Khuroo et al. (2007); Sekar et al. (2012); Jaryan et al. (2013)
286	<i>Euphorbia hirta</i> L.	Euphorbiaceae	Trop. America/SAM	Herb	Sekar et al. (2012); Jaryan et al. (2013)
287	<i>Euphorbia leucocephala</i> L.	Euphorbiaceae	NAM (Mexico)	Shrub	Negi & Hajra (2007)
288	<i>Euphorbia milii</i> Des Moul.	Euphorbiaceae	AF (Madagascar)	Shrub	Negi & Hajra (2007)
289	<i>Euphorbia peplus</i> L.	Euphorbiaceae	EU	Herb	Sekar et al. (2012)
290	<i>Euphorbia prostrata</i> Aiton	Euphorbiaceae	Trop. America/SAM	Herb	Negi & Hajra (2007); Jaryan et al. (2013)
291	<i>Euphorbia pulcherrima</i> Willd. ex Klotzsch	Euphorbiaceae	NAM (Mexico)	Shrub	Khuroo et al. (2007); Jaryan et al. (2013)
292	<i>Euphorbia thymifolia</i> L.	Euphorbiaceae	SAM	Herb	Jaryan et al. (2013)
293	<i>Euphorbia tirucalli</i> L.	Euphorbiaceae	AF (Kenya)	Shrub	Negi & Hajra (2007)
294	<i>Evolvulus nummularius</i> (L.) L.	Convolvulaceae	Trop. America	Herb	Negi & Hajra (2007); Sekar et al. (2012)
295	<i>Fagopyrum esculentum</i> Moench	Polygonaceae	AS	Herb	Khuroo et al. (2007); Jaryan et al. (2013)
296	<i>Ficus carica</i> L.	Moraceae	EU	Tree	Khuroo et al. (2007); Jaryan et al. (2013)
297	<i>Ficus pumila</i> L.	Moraceae	AS	Climber	Jaryan et al. (2013)
298	<i>Ficus religiosa</i> L.	Moraceae	EU	Tree	Khuroo et al. (2007); Jaryan et al. (2013)
299	<i>Flindersia australis</i> R.Br.	Rutaceae	AU	Tree	Negi & Hajra (2007)
300	<i>Foeniculum vulgare</i> Mill.	Apiaceae	EU	Herb	Khuroo et al. (2007); Negi & Hajra (2007)
301	<i>Fragaria nubicola</i> (Lindl. ex Hook.f.) Lacaita	Rosaceae	EU	Herb	Khuroo et al. (2007)
302	<i>Fragaria vesca</i> L.	Rosaceae	EU/NAM/SAM	Herb	Jaryan et al. (2013);
303	<i>Fraxinus uhdei</i> (Wenz.) Lingelsh.	Oleaceae	NAM (Mexico)	Tree	Negi & Hajra (2007)
304	<i>Freesia refracta</i> (Jacq.) Klatt	Iridaceae	AF	Herb	Khuroo et al. (2007)
305	<i>Fuirena ciliaris</i> (L.) Roxb.	Cyperaceae	Trop. America	Sedge	Sekar et al. (2012)
306	<i>Galinsoga parviflora</i> Cav.	Asteraceae	Trop. America/SAM	Herb	Khuroo et al. (2007); Sekar et al. (2012); Jaryan et al. (2013)
307	<i>Galinsoga quadriradiata</i> Ruiz & Pav.	Asteraceae	NAM (Mexico)	Herb	Sekar et al. (2012)
308	<i>Galium aparine</i> L.	Rubiaceae	AF/EU	Herb	Khuroo et al. (2007); Jaryan et al. (2013)
309	<i>Galium asperifolium</i> Wall.	Rubiaceae	EU	Herb	Khuroo et al. (2007); Jaryan et al. (2013)
310	<i>Galium elegans</i> Wall. ex Roxb.	Rubiaceae	AF/EU	Herb	Khuroo et al. (2007); Jaryan et al. (2013)
311	<i>Galphimia gracilis</i> Bartl.	Malpighiaceae	NAM (Mexico)	Shrub	Negi & Hajra (2007)
312	<i>Gardenia volkensii</i> subsp. <i>spathulifolia</i> (Stapf & Hutch.) Verdc.	Rubiaceae	AF (Uganda)	Shrub	Negi & Hajra (2007)
313	<i>Geijera parviflora</i> Lindl.	Rutaceae	AU	Tree	Negi & Hajra (2007)
314	<i>Gigantochloa albociliata</i> (Munro) Kurz	Poaceae	central America	Grass	Negi & Hajra (2007)
315	<i>Gigantochloa atter</i> (Hassk.) Kurz	Poaceae	AS (Malaysia)	Grass	Negi & Hajra (2007)

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316	<i>Gigantochloa verticillata</i> (Willd.) Munro	Poaceae	AS (Malaysia)	Grass	Negi & Hajra (2007)
317	<i>Ginkgo biloba</i> L.	Ginkgoaceae	AS (China, Japan)	Tree	Khuroo et al. (2007); Tiwari et al. (2010); Jaryan et al. (2013)
318	<i>Glebionis coronaria</i> (L.) Cass. ex Spach	Asteraceae	AF/EU/Mediterranean region	Herb	Khuroo et al. (2007); Negi & Hajra (2007)
319	<i>Gleditsia macracantha</i> Desf.	Fabaceae	AS (China)	Tree	Negi & Hajra (2007)
320	<i>Gleditsia sinensis</i> Lam.	Fabaceae	AS (China)	Tree	Negi & Hajra (2007)
321	<i>Gleditsia triacanthos</i> L.	Fabaceae	USA	Tree	Negi & Hajra (2007)
322	<i>Glycine max</i> (L.) Merr.	Fabaceae	AS	Herb	Khuroo et al. (2007)
323	<i>Gnaphalium pensylvanicum</i> Willd.	Asteraceae	Trop. America	Herb	Negi & Hajra (2007); Sekar et al. (2012)
324	<i>Gnaphalium polycaulon</i> Pers.	Asteraceae	Trop. America/SAM	Herb	Sekar et al. (2012); Jaryan et al. (2013)
325	<i>Gomphocarpus physocarpus</i> E. Mey.	Apocynaceae	AF	Shrub	Negi & Hajra (2007)
326	<i>Gomphrena celosioides</i> Mart.	Amaranthaceae	SAM	Herb	Khuroo et al. (2007); Sekar et al. (2012); Jaryan et al. (2013);
327	<i>Gomphrena globosa</i> L.	Amaranthaceae	SAM/Trop. America	Herb	Khuroo et al. (2007); Negi & Hajra (2007)
328	<i>Gomphrena serrata</i> L.	Amaranthaceae	Trop. America	Herb	Sekar et al. (2012)
329	<i>Gossypium hirsutum</i> L.	Malvaceae	Central America	Herb	Negi & Hajra (2007)
330	<i>Grangea maderaspatana</i> (L.) Poir.	Asteraceae	SAM	Herb	Sekar et al. (2012); Jaryan et al. (2013)
331	<i>Grevillea robusta</i> A.Cunn. ex R.Br.	Proteaceae	AU	Tree	Negi & Hajra (2007)
332	<i>Guadua angustifolia</i> Kunth	Poaceae	USA	Grass	Negi & Hajra (2007)
333	<i>Haematoxylum campechianum</i> L.	Fabaceae	NAM (Mexico)	Tree	Negi & Hajra (2007)
334	<i>Hamelia patens</i> Jacq.	Rubiaceae	SAM (Brazil)	Shrub	Negi & Hajra (2007)
335	<i>Hedera helix</i> L.	Araliaceae	EU	Climber	Khuroo et al. (2007); Sankaran & Suresh (2013)
336	<i>Helianthus annuus</i> L.	Asteraceae	NAM	Herb	Khuroo et al. (2007); Negi & Hajra (2007)
337	<i>Helianthus debilis</i> subsp. <i>cucumerifolius</i> (Torr. & A.Gray) Heiser	Asteraceae	NAM	Herb	Negi & Hajra (2007)
338	<i>Helianthus tuberosus</i> L.	Asteraceae	NAM	Herb	Khuroo et al. (2007); Jaryan et al. (2013)
339	<i>Helictotrichon pratense</i> (L.) Pilg.	Poaceae	EU	Grass	Khuroo et al. (2007)
340	<i>Heimericallis fulva</i> (L.) L.	Xanthorrhoeaceae	EU	Herb	Khuroo et al. (2007); Jaryan et al. (2013)
341	<i>Hibiscus arnottianus</i> A.Gray	Malvaceae	NAM (Hawaii)	Shrub	Negi & Hajra (2007)
342	<i>Hibiscus cannabinus</i> L.	Malvaceae	SAM/Trop. America	Herb	Khuroo et al. (2007); Jaryan et al. (2013)
343	<i>Hibiscus mutabilis</i> L.	Malvaceae	AS (China)	Shrub	Negi & Hajra (2007)
344	<i>Hibiscus rosa-sinensis</i> L.	Malvaceae	AS (China)	Shrub	Khuroo et al. (2007); Negi & Hajra (2007)
345	<i>Hibiscus sabdariffa</i> L.	Malvaceae	SAM	Herb	Jaryan et al. (2013)
346	<i>Hibiscus schizopetalus</i> (Dyer) Hook.f.	Malvaceae	AF	Herb	Khuroo et al. (2007)
347	<i>Hibiscus syriacus</i> L.	Malvaceae	AS (Syria) (Uncertain)	Shrub	Khuroo et al. (2007); Jaryan et al. (2013)
348	<i>Hibiscus trionum</i> L.	Malvaceae	AF	Herb	Khuroo et al. (2007); Jaryan et al. (2013)
349	<i>Holosteum umbellatum</i> L.	Caryophyllaceae	AF	Herb	Khuroo et al. (2007)
350	<i>Hordeum vulgare</i> L.	Poaceae	EU/NAM	Grass	Khuroo et al. (2007); Jaryan et al. (2013)
351	<i>Hydrangea macrophylla</i> (Thunb.) Ser.	Hydrangeaceae	AS (China, Japan)	Shrub	Negi & Hajra (2007)
352	<i>Hyoscyamus niger</i> L.	Solanaceae	AF/EU	Herb	Khuroo et al. (2007)
353	<i>Hypericum perforatum</i> L.	Hypericaceae	EU	Herb	Khuroo et al. (2007); Jaryan et al. (2013); Sankaran & Suresh (2013);
354	<i>Hyptis suaveolens</i> (L.) Poit.	Lamiaceae	Trop. America	Herb	Negi & Hajra (2007); Sekar et al. (2012);
355	<i>Iberis amara</i> L.	Brassicaceae	EU	Herb	Khuroo et al. (2007); Jaryan et al. (2013)
356	<i>Imperata cylindrica</i> (L.) Raeusch.	Poaceae	Trop. America/AS/EU	Grass	Khuroo et al. (2007); Sekar et al. (2012); Jaryan et al. (2013)
357	<i>Indigofera astragalina</i> DC.	Fabaceae	Trop. America/SAM	Herb	Sekar et al. (2012); Jaryan et al. (2013)
358	<i>Indigofera glandulosa</i> Wendl.	Fabaceae	Trop. America	Herb	Sekar et al. (2012)
359	<i>Indigofera hirsuta</i> L.	Fabaceae	AF	Herb	Srivastava et al. (2014)
360	<i>Indigofera linifolia</i> (L.f.) Retz.	Fabaceae	SAM	Herb	Sekar et al. (2012); Jaryan et al. (2013)
361	<i>Indigofera linnaei</i> Ali	Fabaceae	AF	Shrub	Sekar et al. (2012)
362	<i>Indigofera trita</i> L.f.	Fabaceae	AF	Shrub	Sekar et al. (2012)

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363	<i>Ipomoea arborescens</i> (Humb. & Bonpl. ex Willd.) G. Don	Convolvulaceae	USA	Tree	Negi & Hajra (2007)
364	<i>Ipomoea cairica</i> (L.) Sweet	Convolvulaceae	AF	Climber	Khuroo et al. (2007); Jaryan et al. (2013)
365	<i>Ipomoea carnea</i> Jacq.	Convolvulaceae	Trop. America/SAM	Shrub	Sekar et al. (2012); Jaryan et al. (2013)
366	<i>Ipomoea hederifolia</i> L.	Convolvulaceae	Trop. America/SAM	Climber	Khuroo et al. (2007); Sekar et al. (2012); Jaryan et al. (2013)
367	<i>Ipomoea indica</i> (Burm.) Merr.	Convolvulaceae	EU/SAM	Climber	Jaryan et al. (2013);
368	<i>Ipomoea muricata</i> (L.) Jacq.	Convolvulaceae	Trop. America	Herb	Sekar et al. (2012)
369	<i>Ipomoea nil</i> (L.) Roth	Convolvulaceae	NAM/SAM	Climber	Khuroo et al. (2007); Jaryan et al. (2013)
370	<i>Ipomoea obscura</i> (L.) Ker Gawl.	Convolvulaceae	AF	Climber	Sekar et al. (2012); Jaryan et al. (2013)
371	<i>Ipomoea pes-tigridis</i> L.	Convolvulaceae	AF	Climber	Sekar et al. (2012); Jaryan et al. (2013)
372	<i>Ipomoea purpurea</i> (L.) Roth	Convolvulaceae	SAM	Climber	Khuroo et al. (2007); Sekar et al. (2012); Jaryan et al. (2013)
373	<i>Ipomoea quamoclit</i> L.	Convolvulaceae	Trop. America/SAM	Climber	Khuroo et al. (2007); Sekar et al. (2012); Jaryan et al. (2013)
374	<i>Ipomoea triloba</i> L.	Convolvulaceae	Trop. America	Climber	Negi & Hajra (2007)
375	<i>Iris germanica</i> L.	Iridaceae	EU	Herb	Khuroo et al. (2007); Jaryan et al. (2013)
376	<i>Iris spuria</i> L.	Iridaceae	AS/EU	Herb	Khuroo et al. (2007)
377	<i>Ixora macrothyrsa</i> (Teijsm. & Binn.) T. Moore	Rubiaceae	AS (Indonesia)	Shrub	Negi & Hajra (2007)
378	<i>Jacaranda mimosifolia</i> D. Don	Bignoniaceae	SAM (Brazil)	Tree	Negi & Hajra (2007); Jaryan et al. (2013)
379	<i>Jasminum mesnyi</i> Hance.	Oleaceae	AS (China)	Shrub	Negi & Hajra (2007)
380	<i>Jatropha curcas</i> L.	Euphorbiaceae	Trop. America/SAM	Shrub	Khuroo et al. (2007); Jaryan et al. (2013); Srivastava et al. (2014)
381	<i>Jatropha gossypifolia</i> L.	Euphorbiaceae	SAM (Brazil)/Trop. America	Shrub	Negi & Hajra (2007); Srivastava et al. (2014)
382	<i>Jatropha integerrima</i> Jacq.	Euphorbiaceae	AS (China)	Shrub	Negi & Hajra (2007)
383	<i>Joannesia princeps</i> Vell.	Euphorbiaceae	SAM (Brazil)	Tree	Negi & Hajra (2007)
384	<i>Juncus inflexus</i> L.	Juncaceae	AF	Herb	Khuroo et al. (2007); Jaryan et al. (2013)
385	<i>Juniperus bermudiana</i> L.	Cupressaceae	NAM (Bermuda)	Tree	Negi & Hajra (2007); Tiwari et al. (2010)
386	<i>Juniperus chinensis</i> L.	Cupressaceae	AS (China)	Shrub	Negi & Hajra (2007); Tiwari et al. (2010)
387	<i>Juniperus communis</i> L.	Cupressaceae	EU (Yugoslavia)	Shrub	Negi & Hajra (2007); Tiwari et al. (2010); Jaryan et al. (2013)
388	<i>Juniperus deppeana</i> Steud.	Cupressaceae	NAM (Mexico)	Tree	Negi & Hajra (2007); Tiwari et al. (2010)
389	<i>Juniperus oxycedrus</i> L.	Cupressaceae	AS (Syria)	Tree	Negi & Hajra (2007); Tiwari et al. (2010)
390	<i>Juniperus phoenicea</i> L.	Cupressaceae	AF (Algeria)	Tree	Negi & Hajra (2007); Tiwari et al. (2010)
391	<i>Juniperus procera</i> Hochst. ex Endl.	Cupressaceae	AF (Kenya)	Tree	Khuroo et al. (2007); Jaryan et al. (2013)
392	<i>Juniperus scopulorum</i> Sarg.	Cupressaceae	USA	Tree	Khuroo et al. (2007); Jaryan et al. (2013)
393	<i>Justicia procumbens</i> L.	Acanthaceae	Trop. America	Herb	Hajra & Balodi (1995); Singh & Prakash, (2002)
394	<i>Khaya senegalensis</i> (Desv.) A. Juss.	Meliaceae	AF (Mozambique)	Tree	Negi & Hajra (2007)
395	<i>Kigelia africana</i> (Lam.) Benth.	Bignoniaceae	AF (Rhodesia)	Tree	Negi & Hajra (2007)
396	<i>Koeleruteria paniculata</i> Laxm.	Sapindaceae	AS (China)	Tree	Khuroo et al. (2007); Negi & Hajra (2007)
397	<i>Lactuca dissecta</i> D. Don	Asteraceae	EU	Herb	Khuroo et al. (2007); Jaryan et al. (2013)
398	<i>Lactuca sativa</i> L.	Asteraceae	AS/EU	Herb	Jaryan et al. (2013)
399	<i>Lagascea mollis</i> Cav.	Asteraceae	Trop. Central America	Herb	Sekar et al. (2012)
400	<i>Lagerstroemia speciosa</i> (L.) Pers.	Lythraceae	NAM	Tree	Jaryan et al. (2013)
401	<i>Lagerstroemia turbinata</i> Koehne	Lythraceae	AS (Vietnam)	Tree	Negi & Hajra (2007)
402	<i>Lantana camara</i> L.	Verbenaceae	Trop. America/SAM/ NAM (West Indies)	Shrub	Khuroo et al. (2007); Sekar et al. (2012); Jaryan et al. (2013)
403	<i>Laphangium affine</i> (D. Don) Tzvelev	Asteraceae	AF/EU	Herb	Khuroo et al. (2007); Jaryan et al. (2013)
404	<i>Lathyrus aphaca</i> L.	Fabaceae	AF/EU	Herb	Khuroo et al. (2007); Jaryan et al. (2013)
405	<i>Lathyrus odoratus</i> L.	Fabaceae	EU	Climber	Khuroo et al. (2007)
406	<i>Lathyrus sativus</i> L.	Fabaceae	AS/AF	Herb	Jaryan et al. (2013)
407	<i>Lens culinaris</i> Medik.	Fabaceae	EU	Herb	Khuroo et al. (2007); Jaryan et al. (2013)

	Name of the species	Family	Nativity	Life form	Reference
408	<i>Leonotis nepetifolia</i> (L.) R.Br.	Lamiaceae	AF	Herb	Sekar et al. (2012)
409	<i>Lepidium didymium</i> L.	Brassicaceae	SAM	Herb	Khuroo et al. (2007); Negi & Hajra (2007); Jaryan et al. (2013); Srivastava et al. (2014)
410	<i>Lepidium virginicum</i> L.	Brassicaceae	NAM	Herb	Khuroo et al. (2007); Jaryan et al. (2013)
411	<i>Leucaena leucocephala</i> (Lam.) de Wit	Fabaceae	Trop. America/SAM/ NAM (Mexico)	Tree	Khuroo et al. (2007); Sekar et al. (2012); Jaryan et al. (2013)
412	<i>Ligustrum lucidum</i> W.T. Aiton	Oleaceae	AS (China)	Shrub	Khuroo et al. (2007); Negi & Hajra (2007); Jaryan et al. (2013); Sankaran & Suresh (2013)
413	<i>Linum usitatissimum</i> L.	Linaceae	EU	Herb	Khuroo et al. (2007); Jaryan et al. (2013)
414	<i>Liquidambar formosana</i> Hance	Altingiaceae	AS (China)	Tree	Negi & Hajra (2007)
415	<i>Liriodendron tulipifera</i> L.	Magnoliaceae	USA	Tree	Negi & Hajra (2007)
416	<i>Livistona australis</i> (R.Br.) Mart.	Arecaceae	AU	Tree	Negi & Hajra (2007)
417	<i>Livistona chinensis</i> (Jacq.) R.Br. ex Mart.	Arecaceae	AS (China)	Tree	Negi & Hajra (2007)
418	<i>Lobularia maritima</i> (L.) Desv.	Brassicaceae	AF/EU	Herb	Khuroo et al. (2007)
419	<i>Lolium temulentum</i> L.	Poaceae	EU	Grass	Khuroo et al. (2007); Jaryan et al. (2013)
420	<i>Lonchocarpus guillemineanus</i> (Tul.) Malme	Fabaceae	SAM (Brazil)	Tree	Negi & Hajra (2007)
421	<i>Lonicera japonica</i> Thunb.	Caprifoliaceae	AS (China)	Shrub	Negi & Hajra (2007)
422	<i>Lophostemon confertus</i> (R.Br.) Peter G. Wilson & J.T. Waterh.	Myrtaceae	AU	Tree	Negi & Hajra (2007)
423	<i>Ludwigia adscendens</i> (L.) H.Hara	Onagraceae	Trop. America/SAM	Herb	Sekar et al. (2012); Jaryan et al. (2013)
424	<i>Ludwigia octovalvis</i> (Jacq.) P.H. Raven	Onagraceae	AF	Herb	Sekar et al. (2012); Jaryan et al. (2013)
425	<i>Ludwigia perennis</i> L.	Onagraceae	AF	Herb	Sekar et al. (2012); Jaryan et al. (2013); Srivastava et al. (2014)
426	<i>Lycopersicon esculentum</i> Mill.	Solanaceae	SAM	Herb	Khuroo et al. (2007)
427	<i>Lysiloma latisiliquum</i> (L.) Benth.	Fabaceae	Trop. America	Tree	Sekar et al. (2012)
428	<i>Maclura pomifera</i> (Raf.) C.K. Schneid.	Moraceae	USA	Tree	Negi & Hajra (2007)
429	<i>Magnolia soulangeana</i> Soul. -Bod.	Magnoliaceae	AS (China)	Tree	Negi & Hajra (2007)
430	<i>Magnolia figo</i> (Lour.) DC.	Magnoliaceae	AS (China)	Tree	Negi & Hajra (2007)
431	<i>Magnolia grandiflora</i> L.	Magnoliaceae	NAM	Tree	Khuroo et al. (2007); Negi & Hajra (2007)
432	<i>Magnolia wilsonii</i> (Finet & Gagnep.) Rehder	Magnoliaceae	AS (Japan)	Shrub	Negi & Hajra (2007)
433	<i>Malachra capitata</i> (L.) L.	Malvaceae	Trop. America	Herb	Sekar et al. (2012)
434	<i>Malva parviflora</i> L.	Malvaceae	EU	Herb	Negi & Hajra (2007)
435	<i>Malvastrum coromandelianum</i> (L.) Garcke	Malvaceae	Trop. America/SAM	Herb	Khuroo et al. (2007); Sekar et al. (2012); Jaryan et al. (2013)
436	<i>Malvaviscus arboreus</i> Cav.	Malvaceae	Trop. America	Shrub	Negi & Hajra (2007)
437	<i>Manihot dichotoma</i> Ule	Euphorbiaceae	SAM (Brazil)	Shrub	Negi & Hajra (2007)
438	<i>Manihot esculenta</i> Crantz	Euphorbiaceae	Trop. America	Tree	Negi & Hajra (2007)
439	<i>Mansoa alliacea</i> (Lam.) A.H. Gentry	Bignoniaceae	SAM	Climber	Negi & Hajra (2007)
440	<i>Markhamia lutea</i> (Benth.) K. Schum.	Bignoniaceae	AF (Uganda)	Tree	Negi & Hajra (2007)
441	<i>Martynia annua</i> L.	Martyniaceae	Trop. America/NAM	Herb	Sekar et al. (2012); Jaryan et al. (2013)
442	<i>Mecardonia procumbens</i> (Mill.) Small	Plantaginaceae	Trop. NAM	Herb	Sekar et al. (2012)
443	<i>Medicago lupulina</i> L.	Fabaceae	AF/EU	Herb	Khuroo et al. (2007); Jaryan et al. (2013)
444	<i>Medicago polymorpha</i> L.	Fabaceae	EU/AF	Herb	Khuroo et al. (2007); Jaryan et al. (2013)
445	<i>Medicago sativa</i> L.	Fabaceae	AF/EU	Herb	Khuroo et al. (2007); Jaryan et al. (2013)
446	<i>Melaleuca styphelioides</i> Sm.	Myrtaceae	AF (Uganda)	Tree	Negi & Hajra (2007)
447	<i>Melilotus albus</i> Medik.	Fabaceae	Europe	Herb	Sekar et al. (2012)
448	<i>Melinis repens</i> (Willd.) Zizka	Poaceae	Trop. America	Grass	Sekar et al. (2012)
449	<i>Melochia corchorifolia</i> L.	Malvaceae	Trop. America	Herb	Sekar et al. (2012)
450	<i>Mentha piperita</i> L.	Lamiaceae	EU	Herb	Khuroo et al. (2007); Negi & Hajra (2007)
451	<i>Mentha arvensis</i> L.	Lamiaceae	AF/EU	Herb	Khuroo et al. (2007)
452	<i>Mentha longifolia</i> (L.) L.	Lamiaceae	AF/EU	Herb	Khuroo et al. (2007); Jaryan et al. (2013)

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453	<i>Mentha spicata</i> L.	Lamiaceae	EU/NAM	Herb	Khuroo et al. (2007)
454	<i>Merremia dissecta</i> (Jacq.) Hallier f.	Convolvulaceae	Trop. America	Herb	Srivastava et al. (2014)
455	<i>Millingtonia hortensis</i> L.f.	Bignoniaceae	AS (Myanmar, Malaya)	Tree	Khuroo et al. (2007); Jaryan et al. (2013)
456	<i>Mimosa pudica</i> L.	Fabaceae	SAM (Brazil)	Herb	Negi & Hajra (2007); Sekar et al. (2012)
457	<i>Mirabilis jalapa</i> L.	Nyctaginaceae	SAM	Herb	Khuroo et al. (2007); Sekar et al. (2012); Jaryan et al. (2013)
458	<i>Monochoria vaginalis</i> (Burm. f.) C. Presl.	Pontederiaceae	Trop. America/SAM	Herb	Sekar et al. (2012); Jaryan et al. (2013)
459	<i>Montanoa grandiflora</i> (DC.) Sch. Bip. ex Hemsl.	Compositae	NAM (Mexico)	Herb	Negi & Hajra (2007)
460	<i>Morus alba</i> L.	Moraceae	AS	Tree	Khuroo et al. (2007); Jaryan et al. (2013)
461	<i>Muehlenbeckia platyclados</i> (F. Muell.) Meisn.	Polygonaceae	Solomon Isles	Shrub	Negi & Hajra (2007)
462	<i>Mussaenda erythrophylla</i> Schumacher. & Thonn.	Rubiaceae	Trop. AF	Shrub	Negi & Hajra (2007)
463	<i>Mussaenda philippica</i> A. Rich.	Rubiaceae	AS (Philippines)	Shrub	Negi & Hajra (2007)
464	<i>Najas graminea</i> Delile	Hydrocharitaceae	NAM/SAM	Herb	Khuroo et al. (2007)
465	<i>Nandina domestica</i> Thunb.	Berberidaceae	AS (China, Japan)	Shrub	Negi & Hajra (2007); Jaryan et al. (2013)
466	<i>Narcissus tazetta</i> L.	Amaryllidaceae	EU	Herb	Khuroo et al. (2007); Jaryan et al. (2013)
467	<i>Nicandra physalodes</i> (L.) Gaertn.	Solanaceae	SAM	Herb	Khuroo et al. (2007) Jaryan et al. (2013)
468	<i>Nicotiana plumbaginifolia</i> Viv.	Solanaceae	Trop. America/SAM	Herb	Khuroo et al. (2007); Sekar et al. (2012); Jaryan et al. (2013)
469	<i>Nicotiana rustica</i> L.	Solanaceae	Central and SAM	Herb	Khuroo et al. (2007); Jaryan et al. (2013)
470	<i>Nicotiana tabacum</i> L.	Solanaceae	NAM/Central and SAM	Herb	Khuroo et al. (2007); Jaryan et al. (2013)
471	<i>Nigella sativa</i> L.	Ranunculaceae	EU	Herb	Negi & Hajra (2007)
472	<i>Nymphaea alba</i> L.	Nymphaeaceae	AF/EU	Herb	Khuroo et al. (2007)
473	<i>Nymphaea lotus</i> L.	Nymphaeaceae	AF	Herb	Khuroo et al. (2007)
474	<i>Ochrosia elliptica</i> Labill.	Apocynaceae	AU	Tree	Negi & Hajra (2007)
475	<i>Ocimum americanum</i> L.	Lamiaceae	Trop. America/SAM	Herb	Sekar et al. (2012); Jaryan et al. (2013)
476	<i>Oenothera biennis</i> L.	Onagraceae	NAM	Herb	Khuroo et al. (2007); Jaryan et al. (2013)
477	<i>Oenothera rosea</i> L'Hér. ex Aiton	Onagraceae	SAM/ NAM (Mexico)	Herb	Khuroo et al. (2007); Jaryan et al. (2013)
478	<i>Olea europaea</i> L.	Oleaceae	Mediterranean region	Tree	Negi & Hajra (2007)
479	<i>Ononis spinosa</i> subsp. <i>hircina</i> (Jacq.) Gams	Fabaceae	EU	Shrub	Khuroo et al. (2007)
480	<i>Opuntia elatior</i> Mill.	Cactaceae	SAM	Shrub	Sekar et al. (2012); Jaryan et al. (2013)
481	<i>Opuntia ficus-indica</i> (L.) Mill.	Cactaceae	SAM	Shrub	Negi & Hajra (2007); Sekar et al. (2012)
482	<i>Opuntia stricta</i> (Haw.) Haw.	Cactaceae	Trop. America	Shrub	Sekar et al. (2012)
483	<i>Origanum vulgare</i> L.	Lamiaceae	EU	Herb	Khuroo et al. (2007)
484	<i>Oryza sativa</i> L.	Poaceae	AS	Grass	Khuroo et al. (2007); Jaryan et al. (2013)
485	<i>Oxalis corniculata</i> L.	Oxalidaceae	EU/AS	Herb	Khuroo et al. (2007); Sekar et al. (2012); Jaryan et al. (2013)
486	<i>Oxalis debilis</i> var. <i>corymbosa</i> (DC.) Lourteig	Oxalidaceae	SAM/Trop. America	Herb	Negi & Hajra (2007); Jaryan et al. (2013) Srivastava et al. (2014)
487	<i>Oxytenanthera abyssinica</i> (A. Rich.) Munro	Poaceae	AF (Zambia)	Grass	Negi & Hajra (2007)
488	<i>Papaver dubium</i> L.	Papaveraceae	AF/EU	Herb	Khuroo et al. (2007); Jaryan et al. (2013)
489	<i>Papaver rhoeas</i> L.	Papaveraceae	AF/EU	Herb	Khuroo et al. (2007); Jaryan et al. (2013)
490	<i>Papaver somniferum</i> L.	Papaveraceae	EU	Herb	Khuroo et al. (2007); Jaryan et al. (2013)
491	<i>Parapiptadenia rigida</i> (Benth.) Brenan	Fabaceae	SAM (Brazil)	Tree	Negi & Hajra (2007)
492	<i>Parkinsonia aculeata</i> L.	Fabaceae	NAM (Mexico)/SAM	Tree	Khuroo et al. (2007); Jaryan et al. (2013)
493	<i>Parthenium hysterophorus</i> L.	Asteraceae	Trop. NAM/SAM	Herb	Khuroo et al. (2007); Sekar et al. (2012); Jaryan et al. (2013)
494	<i>Paspalum dilatatum</i> Poir.	Poaceae	SAM	Grass	Khuroo et al. (2007); Jaryan et al. (2013)
495	<i>Paspalum distichum</i> L.	Poaceae	NAM	Grass	Khuroo et al. (2007); Jaryan et al. (2013)
496	<i>Passiflora caerulea</i> L.	Passifloraceae	SAM	Climber	Jaryan et al. (2013)
497	<i>Passiflora edulis</i> Sims	Passifloraceae	SAM (Brazil)	Climber	Khuroo et al. (2007); Negi & Hajra (2007)

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498	<i>Passiflora foetida</i> L.	Passifloraceae	Trop. SAM	Herb	Sekar et al. (2012)
499	<i>Passiflora suberosa</i> L.	Passifloraceae	NAM (West Indies)	Climber	Negi & Hajra (2007)
500	<i>Peltophorum africanum</i> Sond.	Fabaceae	AF (Uganda)	Tree	Negi & Hajra (2007)
501	<i>Peltophorum pterocarpum</i> (DC.) K. Heyne	Fabaceae	AS (Sri Lanka)	Tree	Negi & Hajra (2007)
502	<i>Pennisetum purpureum</i> Schumacher.	Poaceae	Trop. America	Grass	Sekar et al. (2012)
503	<i>Pentas lanceolata</i> (Forssk.) Deflers	Rubiaceae	AF (Kenya, Egypt)	Shrub	Negi & Hajra (2007)
504	<i>Peperomia pellucida</i> (L.) Kunth	Piperaceae	SAM	Herb	Khuroo et al. (2007); Sekar et al. (2012); Jaryan et al. (2013)
505	<i>Pereskia aculeata</i> Mill.	Cactaceae	Trop. America	Climber	Negi & Hajra (2007)
506	<i>Pereskia grandiflora</i> Pfeiff.	Cactaceae	SAM (Brazil)	Climber	Negi & Hajra (2007)
507	<i>Persia americana</i> Mill.	Lauraceae	NAM (Mexico)	Tree	Negi & Hajra (2007)
508	<i>Persicaria amphibia</i> (L.) Delarbre	Polygonaceae	NAM	Herb	Khuroo et al. (2007); Jaryan et al. (2013)
509	<i>Persicaria hydropiper</i> (L.) Delarbre	Polygonaceae	EU	Herb	Khuroo et al. (2007); Jaryan et al. (2013)
510	<i>Petrea volubilis</i> L.	Verbenaceae	NAM (Mexico)	Shrub	Negi & Hajra (2007)
511	<i>Petunia hybrida</i> Vilm.	Solanaceae	NA	Herb	Khuroo et al. (2007)
512	<i>Phaseolus vulgaris</i> L.	Fabaceae	SAM	Herb	Khuroo et al. (2007); Jaryan et al. (2013)
513	<i>Phleum pratense</i> L.	Poaceae	EU	Grass	Khuroo et al. (2007); Jaryan et al. (2013)
514	<i>Phlox drummondii</i> Hook.	Polemoniaceae	NAM	Herb	Khuroo et al. (2007)
515	<i>Phoenix canariensis</i> Chabaud	Arecaceae	AF (Canary Isles)	Tree	Negi & Hajra (2007)
516	<i>Phoenix reclinata</i> Jacq.	Arecaceae	Trop. AF	Tree	Negi & Hajra (2007)
517	<i>Phragmites australis</i> (Cav.) Trin. ex Steud.	Poaceae	SAM	Grass	Khuroo et al. (2007)
518	<i>Phyla nodiflora</i> (L.) Greene	Verbenaceae	SAM	Herb	Khuroo et al. (2007); Jaryan et al. (2013)
519	<i>Physalis angulata</i> L.	Solanaceae	Trop. America/NAM	Herb	Khuroo et al. (2007); Sekar et al. (2012); Jaryan et al. (2013)
520	<i>Physalis heterophylla</i> Nees	Solanaceae	SAM (Peru)/NAM	Herb	Negi & Hajra (2007); Sekar et al. (2012)
521	<i>Physalis minima</i> L.	Solanaceae	Trop. America/SAM	Herb	Sekar et al. (2012); Jaryan et al. (2013)
522	<i>Physalis peruviana</i> L.	Solanaceae	SAM (Peru)	Herb	Khuroo et al. (2007); Sekar et al. (2012); Jaryan et al. (2013);
523	<i>Pilea microphylla</i> (L.) Liebm.	Urticaceae	Trop. SAM	Herb	Sekar et al. (2012)
524	<i>Pilea serpyllifolia</i> (Poir.) Wedd.	Urticaceae	NAM (Mexico)	Herb	Negi & Hajra (2007)
525	<i>Pinus canariensis</i> C.Sm.	Pinaceae	AF (Canary Island)	Tree	Khuroo et al. (2007); Jaryan et al. (2013)
526	<i>Pinus caribaea</i> Morelet	Pinaceae	NAM (Cuba)	Tree	Khuroo et al. (2007); Jaryan et al. (2013)
527	<i>Pinus densiflora</i> Siebold & Zucc.	Pinaceae	AS (Japan)	Tree	Khuroo et al. (2007); Jaryan et al. (2013)
528	<i>Pinus echinata</i> Mill.	Pinaceae	NAM (Mexico)	Tree	Tiwari et al. (2010)
529	<i>Pinus elliotii</i> Engelm.	Pinaceae	USA	Tree	Khuroo et al. (2007); Jaryan et al. (2013)
530	<i>Pinus halepensis</i> Mill.	Pinaceae	EU (Cyprus)	Tree	Khuroo et al. (2007); Jaryan et al. (2013)
531	<i>Pinus hartwegii</i> Lindl.	Pinaceae	Mediterranean	Tree	Khuroo et al. (2007); Jaryan et al. (2013)
532	<i>Pinus merkusii</i> Jungh. & deVriese	Pinaceae	AS (Myanmar)	Tree	Khuroo et al. (2007); Jaryan et al. (2013)
533	<i>Pinus oocarpa</i> Schiede	Pinaceae	NAM (Mexico)	Tree	Khuroo et al. (2007); Jaryan et al. (2013)
534	<i>Pinus patula</i> Schiede ex Schltdl. & Cham.	Pinaceae	NAM (Mexico)	Tree	Khuroo et al. (2007); Jaryan et al. (2013)
535	<i>Pinus radiata</i> D.Don	Pinaceae	USA	Tree	Khuroo et al. (2007); Jaryan et al. (2013)
536	<i>Pistia stratiotes</i> L.	Araceae	Trop. America	Herb	Sekar et al. (2012)
537	<i>Pisum sativum</i> L.	Fabaceae	AS/EU	Herb	Jaryan et al. (2013)
538	<i>Pithecellobium dulce</i> (Roxb.) Benth.	Fabaceae	NAM (Mexico)	Tree	Negi & Hajra (2007)
539	<i>Plantago lanceolata</i> L.	Plantaginaceae	AF/EU	Herb	Khuroo et al. (2007); Jaryan et al. (2013)
540	<i>Plantago major</i> L.	Plantaginaceae	EU	Herb	Khuroo et al. (2007); Jaryan et al. (2013)
541	<i>Platanus occidentalis</i> L.	Platanaceae	America	Tree	Negi & Hajra (2007)
542	<i>Platanus orientalis</i> L.	Platanaceae	AS/EU	Tree	Khuroo et al. (2007); Negi & Hajra (2007)
543	<i>Platyclusus orientalis</i> (L.) Franco	Cupressaceae	AS (China)	Tree	Khuroo et al. (2007); Negi & Hajra (2007); Tiwari et al. (2010)
544	<i>Plumbago auriculata</i> Lam.	Plumbaginaceae	S.AF	Shrub	Negi & Hajra (2007)
545	<i>Plumeria alba</i> L.	Apocynaceae	America	Tree	Negi & Hajra (2007)

	Name of the species	Family	Nativity	Life form	Reference
546	<i>Plumeria rubra</i> L.	Apocynaceae	NAM (Mexico)	Tree	Negi & Hajra (2007)
547	<i>Poa annua</i> L.	Poaceae	EU	Grass	Khuroo et al. (2007); Jaryan et al. (2013)
548	<i>Poa pratensis</i> L.	Poaceae	EU/NAM	Grass	Khuroo et al. (2007); Jaryan et al. (2013)
549	<i>Podocarpus latifolius</i> (Thunb.) R.Br. ex Mirb.	Podocarpaceae	AF (Kenya)	Tree	Khuroo et al. (2007); Jaryan et al. (2013)
550	<i>Podocarpus macrophyllus</i> (Thunb.) Sweet	Podocarpaceae	AS (China, Japan)	Tree	Khuroo et al. (2007); Jaryan et al. (2013)
551	<i>Polemonium caeruleum</i> L.	Polemoniaceae	EU	Herb	Khuroo et al. (2007); Jaryan et al. (2013)
552	<i>Polygonum aviculare</i> L.	Polygonaceae	EU	Herb	Khuroo et al. (2007); Jaryan et al. (2013)
553	<i>Polypogon monspeliensis</i> (L.) Desf.	Poaceae	EU	Grass	Khuroo et al. (2007); Jaryan et al. (2013)
554	<i>Populus deltoides</i> Marshall	Salicaceae	USA	Tree	Negi & Hajra (2007)
555	<i>Populus nigra</i> var. <i>italica</i> Münchh.	Salicaceae	EU	Tree	Khuroo et al. (2007); Jaryan et al. (2013)
556	<i>Portulaca grandiflora</i> Hook.	Portulacaceae	SAM (Brazil)	Herb	Negi & Hajra (2007)
557	<i>Portulaca oleracea</i> L.	Portulacaceae	AF/NAM/SAM	Herb	Khuroo et al. (2007); Sekar et al. (2012); Jaryan et al. (2013)
558	<i>Portulaca pilosa</i> L.	Portulacaceae	SAM	Herb	Khuroo et al. (2007); Jaryan et al. (2013)
559	<i>Portulaca quadrifida</i> L.	Portulacaceae	Trop. America/SAM	Herb	Sekar et al. (2012); Jaryan et al. (2013)
560	<i>Potamogeton crispus</i> L.	Potamogetonaceae	EU/SAM	Herb	Khuroo et al. (2007)
561	<i>Potamogeton lucens</i> L.	Potamogetonaceae	AF/EU	Herb	Khuroo et al. (2007)
562	<i>Potamogeton nodosus</i> Poir.	Potamogetonaceae	NAM	Herb	Khuroo et al. (2007); Jaryan et al. (2013)
563	<i>Potentilla supina</i> L.	Rosaceae	AF/EU	Herb	Khuroo et al. (2007); Jaryan et al. (2013)
564	<i>Prosopis chilensis</i> (Molina) Stuntz	Fabaceae	NAM (Mexico)	Tree	Negi & Hajra (2007)
565	<i>Prosopis juliflora</i> (Sw.) DC.	Fabaceae	NAM (Mexico)/SAM	Tree	Khuroo et al. (2007); Sekar et al. (2012); Jaryan et al. (2013)
566	<i>Prunella vulgaris</i> L.	Lamiaceae	AF/EU	Herb	Khuroo et al. (2007); Jaryan et al. (2013)
567	<i>Prunus yedoensis</i> Matsum.	Rosaceae	AS (Japan)	Tree	Negi & Hajra (2007)
568	<i>Prunus armeniaca</i> L.	Rosaceae	AS	Tree	Khuroo et al. (2007); Jaryan et al. (2013)
569	<i>Prunus cerasus</i> L.	Rosaceae	AS/EU	Tree	Khuroo et al. (2007); Jaryan et al. (2013)
570	<i>Prunus domestica</i> L.	Rosaceae	AS	Tree	Khuroo et al. (2007); Jaryan et al. (2013)
571	<i>Prunus persica</i> (L.) Batsch	Rosaceae	AS (China)	Tree	Khuroo et al. (2007); Jaryan et al. (2013)
572	<i>Psidium cattleianum</i> Afzel. ex Sabine	Myrtaceae	SAM (Brazil)	Shrub	Negi & Hajra (2007)
573	<i>Psidium guajava</i> L.	Myrtaceae	SAM	Tree	Negi & Hajra (2007); Jaryan et al. (2013); Sankaran & Suresh (2013)
574	<i>Pterocarya stenoptera</i> C. DC.	Juglandaceae	AS(China)	Tree	Negi & Hajra (2007)
575	<i>Pycnus flavidus</i> (Retz.) T. Koyama	Cyperaceae	AF/EU	Sedge	Khuroo et al. (2007)
576	<i>Pycnus sanguinolentus</i> (Vahl) Nees	Cyperaceae	NAM/SAM	Sedge	Khuroo et al. (2007); Jaryan et al. (2013)
577	<i>Pyrostegia venusta</i> (Ker Gawl.) Miers	Bignoniaceae	SAM (Brazil)	Climber	Negi & Hajra (2007)
578	<i>Pyrus communis</i> L.	Rosaceae	AS/EU	Tree	Khuroo et al. (2007); Jaryan et al. (2013)
579	<i>Pyrus pyrifolia</i> (Burm.f.) Nakai	Rosaceae	AS (China)	Tree	Negi & Hajra (2007)
580	<i>Ranunculus arvensis</i> L.	Ranunculaceae	AF/EU	Herb	Khuroo et al. (2007); Jaryan et al. (2013)
581	<i>Ranunculus laetus</i> Wall. ex Hook. f. & J.W. Thomson	Ranunculaceae	EU	Herb	Khuroo et al. (2007)
582	<i>Ranunculus muricatus</i> L.	Ranunculaceae	AF/EU	Herb	Khuroo et al. (2007); Jaryan et al. (2013)
583	<i>Ranunculus sceleratus</i> L.	Ranunculaceae	EU	Herb	Khuroo et al. (2007); Jaryan et al. (2013)
584	<i>Raphanus raphanistrum</i> subsp. <i>sativus</i> (L.) Domin	Brassicaceae	AF/EU	Herb	Khuroo et al. (2007); Jaryan et al. (2013)
585	<i>Rauvolfia tetraphylla</i> L.	Apocynaceae	NAM (West Indies)	Herb	Srivastava et al. (2014)
586	<i>Ribes alpestre</i> Wall. ex Decne.	Grossulariaceae	AF/EU	Shrub	Khuroo et al. (2007); Jaryan et al. (2013)
587	<i>Richardia scabra</i> L.	Rubiaceae	SAM	Herb	Negi & Hajra (2007)
588	<i>Ricinus communis</i> L.	Euphorbiaceae	AF	Shrub	Khuroo et al. (2007); Jaryan et al. (2013)
589	<i>Rivina humilis</i> L.	Phytolaccaceae	SAM	Herb	Khuroo et al. (2007); Jaryan et al. (2013)
590	<i>Robinia pseudoacacia</i> L.	Fabaceae	NAM	Tree	Khuroo et al. (2007); Jaryan et al. (2013); Sankaran & Suresh (2013)
591	<i>Rorippa dubia</i> (Pers.) H.Hara	Brassicaceae	Trop. America/SAM	Herb	Sekar et al. (2012); Jaryan et al. (2013)
592	<i>Rosa banksiae</i> R.Br.	Rosaceae	AS	Climber	Khuroo et al. (2007)

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593	<i>Rosa cathayensis</i> (Rehder & E.H. Wilson) L.H. Bailey	Rosaceae	AS (China)	Climber	Negi & Hajra (2007)
594	<i>Rosa laevigata</i> Michx.	Rosaceae	AS (China, Japan)/ America	Climber	Negi & Hajra (2007)
595	<i>Rosa moschata</i> Herrm.	Rosaceae	AF/EU	Shrub	Khuroo et al. (2007); Jaryan et al. (2013)
596	<i>Rosa multiflora</i> Thunb.	Rosaceae	AS	Shrub	Khuroo et al. (2007); Jaryan et al. (2013)
597	<i>Rosmarinus officinalis</i> L.	Lamiaceae	EU	Shrub	Khuroo et al. (2007)
598	<i>Rotheca myricoides</i> (Hochst.) Steane & Mabb.	Lamiaceae	AF	Climber	Negi & Hajra (2007)
599	<i>Roystonea regia</i> (Kunth) O.F. Cook	Arecaceae	NAM (Cuba)	Tree	Negi & Hajra (2007)
600	<i>Rubus ellipticus</i> Sm.	Rosaceae	Trop. America	Shrub	Sekar (2012)
601	<i>Ruellia tuberosa</i> L.	Acanthaceae	Trop. America/NAM (West Indies)	Herb	Negi & Hajra (2007); Sekar et al. (2012)
602	<i>Rumex dentatus</i> L.	Polygonaceae	AF/EU	Herb	Khuroo et al. (2007)
603	<i>Rumex nepalensis</i> Spreng.	Polygonaceae	AF/EU	Herb	Khuroo et al. (2007); Jaryan et al. (2013)
604	<i>Russelia equisetiformis</i> Schltldl. & Cham.	Plantaginaceae	NAM (Mexico)	Shrub	Negi & Hajra (2007)
605	<i>Sabal palmetto</i> (Walter) Lodd. ex Schult. & Schult.f.	Arecaceae	NAM (Bermuda Island)	Tree	Negi & Hajra (2007)
606	<i>Saccharum ravennae</i> (L.) L.	Poaceae	EU	Grass	Khuroo et al. (2007)
607	<i>Sagina procumbens</i> L.	Caryophyllaceae	EU/NAM	Herb	Khuroo et al. (2007)
608	<i>Sagina saginoides</i> (L.) H. Karst.	Caryophyllaceae	EU	Herb	Khuroo et al. (2007); Jaryan et al. (2013)
609	<i>Sagittaria sagittifolia</i> L.	Alismataceae	NAM	Herb	Khuroo et al. (2007)
610	<i>Salix babylonica</i> L.	Salicaceae	AS (China, Babylon)	Tree	Khuroo et al. (2007); Jaryan et al. (2013)
611	<i>Salvia coccinea</i> Buc'hoz ex Etl.	Lamiaceae	NAM/SAM	Herb	Khuroo et al. (2007); Jaryan et al. (2013)
612	<i>Salvia officinalis</i> L.	Lamiaceae	EU	Shrub	Khuroo et al. (2007)
613	<i>Sambucus nigra</i> L.	Adoxaceae	EU	Shrub	Khuroo et al. (2007); Jaryan et al. (2013)
614	<i>Sanicula elata</i> Buch. -Ham. ex D.Don	Apiaceae	AF/EU	Herb	Khuroo et al. (2007); Jaryan et al. (2013)
615	<i>Sapium sebiferum</i> (L.) Roxb.	Euphorbiaceae	AS (China)	Tree	Negi & Hajra (2007)
616	<i>Schefflera actinophylla</i> (Endl.) Harms	Araliaceae	AU	Tree	Negi & Hajra (2007)
617	<i>Schefflera arboricola</i> (Hayata) Merr.	Araliaceae	AS (Taiwan)	Shrub	Negi & Hajra (2007)
618	<i>Schizolobium parahyba</i> (Vell.) S.F. Blake	Fabaceae	SAM	Tree	Negi & Hajra (2007)
619	<i>Schoenoplectiella juncoideus</i> (Roxb.) Lye	Cyperaceae	NAM	Sedge	Jaryan et al. (2013)
620	<i>Schoenoplectus triquetus</i> (L.) Palla	Cyperaceae	AF	Sedge	Khuroo et al. (2007)
621	<i>Scoparia dulcis</i> L.	Plantaginaceae	Trop. America/SAM	Herb	Khuroo et al. (2007); Sekar et al. (2012); Jaryan et al. (2013)
622	<i>Searsia lancea</i> (L.f.) F.A. Barkley	Anacardiaceae	Trop. AF	Tree	Negi & Hajra (2007)
623	<i>Sechium edule</i> (Jacq.) Sw.	Cucurbitaceae	SAM	Climber	Khuroo et al. (2007); Jaryan et al. (2013)
624	<i>Selenicereus grandiflorus</i> (L.) Britton & Rose	Cactaceae	NAM (Jamaica, Cuba)	Shrub	Negi & Hajra (2007)
625	<i>Senna alata</i> (L.) Roxb.	Fabaceae	Trop. America	Shrub	Rana & Rastogi (2017)
626	<i>Senna multijuga</i> (Rich.) H.S. Irwin & Barneby	Fabaceae	America/ AS (Malaysia)	Tree	Negi & Hajra (2007)
627	<i>Senna obtusifolia</i> (L.) H.S. Irwin & Barneby	Fabaceae	SAM	Herb	Sekar et al. (2012); Jaryan et al. (2013)
628	<i>Senna occidentalis</i> (L.) Link	Fabaceae	SAM	Herb	Negi & Hajra (2007); Sekar et al. (2012); Jaryan et al. (2013)
629	<i>Senna spectabilis</i> (DC.) H.S. Irwin & Barneby	Fabaceae	Trop. America	Tree	Negi & Hajra (2007)
630	<i>Senna splendida</i> (Vogel) H.S. Irwin & Barneby	Fabaceae	SAM (Brazil)	Tree	Negi & Hajra (2007)
631	<i>Senna tora</i> (L.) Roxb.	Fabaceae	Trop. SAM/SAM	Herb	Sekar et al. (2012); Jaryan et al. (2013)
632	<i>Sesamum indicum</i> L.	Pedaliaceae	AF	Herb	Khuroo et al. (2007); Jaryan et al. (2013)
633	<i>Sesbania bispinosa</i> (Jacq.) W. Wight	Fabaceae	Trop. America/SAM	Herb	Sekar et al. (2012); Jaryan et al. (2013)
634	<i>Sesbania sesban</i> (L.) Merr.	Fabaceae	S.AF	Tree	Negi & Hajra (2007)
635	<i>Setaria palmifolia</i> (J. Koenig) Stapf	Poaceae	Trop. America	Grass	Sekar et al. (2012)
636	<i>Setaria parviflora</i> (Poir.) M.Kerguelen	Poaceae	Trop. America	Grass	Sekar et al. (2012)
637	<i>Sida acuta</i> Burm.f.	Malvaceae	Trop. America	Herb	Sekar et al. (2012)

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638	<i>Sida cordata</i> (Burm.f.) Borss. Waalk.	Malvaceae	SAM	Herb	Khuroo et al. (2007); Jaryan et al. (2013)
639	<i>Silene latifolia</i> subsp. <i>alba</i> (Mill.) Greuter & Burdet	Caryophyllaceae	EU/AF/AS	Herb	Negi & Hajra (2007)
640	<i>Silybum marianum</i> (L.) Gaertn.	Asteraceae	AF/EU	Herb	Khuroo et al. (2007); Jaryan et al. (2013)
641	<i>Sinapis alba</i> L.	Brassicaceae	AF/EU	Herb	Khuroo et al. (2007)
642	<i>Solanum aculeatissimum</i> Jacq.	Solanaceae	Trop. America	Herb	Srivastava et al. (2014)
643	<i>Solanum americanum</i> Mill.	Solanaceae	Trop. America/SAM	Herb	Sekar et al. (2012); Jaryan et al. (2013)
644	<i>Solanum asperolanatum</i> Ruiz & Pav.	Solanaceae	SAM (Peru)/Trop. America	Shrub	Khuroo et al. (2007); Sekar et al. (2012); Jaryan et al. (2013)
645	<i>Solanum pseudocapsicum</i> L.	Solanaceae	Trop. America/AS/AF	Herb	Khuroo et al. (2007); Sekar et al. (2012); Jaryan et al. (2013)
646	<i>Solanum seforthianum</i> Andrews	Solanaceae	SAM (Brazil)	Climber	Sekar et al. (2012)
647	<i>Solanum torvum</i> Sw.	Solanaceae	NAM (West Indies)/SAM	Shrub	Negi & Hajra (2007); Sekar et al. (2012)
648	<i>Solanum tuberosum</i> L.	Solanaceae	SAM	Herb	Khuroo et al. (2007); Jaryan et al. (2013)
649	<i>Solanum viarum</i> Dunal	Solanaceae	Trop. America/SAM	Herb	Sekar et al. (2012); Jaryan et al. (2013)
650	<i>Solidago canadensis</i> L.	Asteraceae	NAM	Herb	Negi & Hajra (2007)
651	<i>Soliva anthemifolia</i> (Juss.) Sweet	Asteraceae	America/AU	Herb	Jaryan et al. (2013); Srivastava et al. (2014);
652	<i>Sonchus arvensis</i> L.	Asteraceae	AS/EU	Herb	Khuroo et al. (2007); Jaryan et al. (2013)
653	<i>Sonchus oleraceus</i> (L.) L.	Asteraceae	Mediterranean/AS	Herb	Sekar et al. (2012); Jaryan et al. (2013)
654	<i>Sorghum bicolor</i> (L.) Moench	Poaceae	AF	Grass	Khuroo et al. (2007)
655	<i>Sorghum halepense</i> (L.) Pers.	Poaceae	EU	Grass	Khuroo et al. (2007); Jaryan et al. (2013)
656	<i>Spartium junceum</i> L.	Fabaceae	EU	Shrub	Khuroo et al. (2007); Jaryan et al. (2013)
657	<i>Spathodea campanulata</i> P. Beauv.	Bignoniaceae	AF (Uganda)	Tree	Negi & Hajra (2007)
658	<i>Spermacoce hispida</i> L.	Rubiaceae	Trop. America	Herb	Sekar et al. (2012)
659	<i>Spinacia oleracea</i> L.	Amaranthaceae	AS	Herb	Khuroo et al. (2007)
660	<i>Spiraea cantoniensis</i> Lour.	Rosaceae	AS (China)	Shrub	Negi & Hajra (2007); Khuroo et al. (2007)
661	<i>Spiraea prunifolia</i> Siebold & Zucc.	Rosaceae	AS (China)	Shrub	Negi & Hajra (2007)
662	<i>Stachytarpheta urticifolia</i> (Salisb.) Sims	Verbenaceae	Trop. America	Herb	Sekar et al. (2012)
663	<i>Stellaria media</i> (L.) Vill.	Caryophyllaceae	EU	Herb	Khuroo et al. (2007); Jaryan et al. (2013)
664	<i>Swietenia macrophylla</i> King	Meliaceae	NAM (Honduras-part of central america)	Tree	Negi & Hajra (2007)
665	<i>Swietenia mahagoni</i> (L.) Jacq.	Meliaceae	NAM (West Indies)	Tree	Negi & Hajra (2007)
666	<i>Tabebuia heterophylla</i> (DC.) Britton	Bignoniaceae	NAM (West Indies)	Tree	Negi & Hajra (2007)
667	<i>Tagetes erecta</i> L.	Asteraceae	SAM/NAM (Mexico)	Herb	Khuroo et al. (2007); Jaryan et al. (2013)
668	<i>Tagetes minuta</i> L.	Asteraceae	SAM	Herb	Khuroo et al. (2007); Jaryan et al. (2013)
669	<i>Talinum paniculatum</i> (Jacq.) Gaertn.	Talinaceae	America	Herb	Negi & Hajra (2007)
670	<i>Tamarindus indica</i> L.	Fabaceae	AF (Ethiopia)	Tree	Negi & Hajra (2007); Jaryan et al. (2013)
671	<i>Tanacetum cinerariifolium</i> (Trevir.) Sch. Bip.	Asteraceae	EU	Herb	Khuroo et al. (2007)
672	<i>Taraxacum campyloides</i> G.E. Haglund	Asteraceae	EU	Herb	Khuroo et al. (2007); Jaryan et al. (2013)
673	<i>Taxodium distichum</i> (L.) Rich.	Cupressaceae	NAM (Florida)	Tree	Khuroo et al. (2007); Jaryan et al. (2013)
674	<i>Taxodium huegelii</i> C. Lawson	Cupressaceae	NAM (Mexico)	Tree	Negi & Hajra (2007); Tiwari et al. (2010)
675	<i>Taxus wallichiana</i> Zucc.	Taxaceae	EU/AS (Afghanistan)/AF	Tree	Khuroo et al. (2007); Tiwari et al. (2010)
676	<i>Tecoma castanifolia</i> (D.Don) Melch.	Bignoniaceae	SAM (Colombia)	Tree	Negi & Hajra (2007)
677	<i>Tecoma stans</i> (L.) Juss. ex Kunth	Bignoniaceae	NAM (South Florida, West Indies)/SAM	Tree	Negi & Hajra (2007)
678	<i>Terminalia sericea</i> Burch. ex DC.	Combretaceae	S. AF	Tree	Negi & Hajra (2007)
679	<i>Tetraclinis articulata</i> (Vahl) Mast.	Cupressaceae	AF (Algeria)	Tree	Negi & Hajra (2007)
680	<i>Tetrapanax papyrifer</i> (Hook.) K. Koch	Araliaceae	AS (China)	Tree	Negi & Hajra (2007)
681	<i>Thalictrum minus</i> L.	Ranunculaceae	EU	Herb	Khuroo et al. (2007); Jaryan et al. (2013)
682	<i>Thuja occidentalis</i> L.	Cupressaceae	NAM (Canada)	Tree	Khuroo et al. (2007); Jaryan et al. (2013)
683	<i>Thymus serpyllum</i> L.	Lamiaceae	EU	Shrub	Khuroo et al. (2007)

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684	<i>Tipuana tipu</i> (Benth.) Kuntze	Fabaceae	SAM (Argentina)	Tree	Negi & Hajra (2007)
685	<i>Tithonia diversifolia</i> (Hemsl.) A. Gray	Asteraceae	NAM (Mexico)	Shrub	Srivastava et al. (2014)
686	<i>Trachycarpus fortunei</i> (Hook.) H. Wendl.	Arecaceae	AS (China, Japan)	Tree	Negi & Hajra (2007)
687	<i>Trapa natans</i> L.	Lythraceae	EU	Herb	Khuroo et al. (2007); Jaryan et al. (2013)
688	<i>Trema orientalis</i> (L.) Blume	Cannabaceae	AF	Tree	Srivastava et al. (2014)
689	<i>Triadica sebifera</i> (L.) Small	Euphorbiaceae	AS	Tree	Jaryan et al. (2013)
690	<i>Tridax procumbens</i> (L.) L.	Asteraceae	Trop. America/SAM	Herb	Sekar et al. (2012); Jaryan et al. (2013)
691	<i>Trifolium dubium</i> Sibth.	Fabaceae	EU	Herb	Khuroo et al. (2007)
692	<i>Trifolium fragiferum</i> L.	Fabaceae	EU	Herb	Khuroo et al. (2007); Jaryan et al. (2013)
693	<i>Trifolium hybridum</i> L.	Fabaceae	EU/AS	Herb	Negi & Hajra (2007)
694	<i>Trifolium pratense</i> L.	Fabaceae	EU	Herb	Khuroo et al. (2007)
695	<i>Trifolium repens</i> L.	Fabaceae	EU	Herb	Khuroo et al. (2007)
696	<i>Triticum aestivum</i> L.	Poaceae	NA	Grass	Khuroo et al. (2007); Jaryan et al. (2013)
697	<i>Triumfetta rhomboidea</i> Jacq.	Malvaceae	Trop. America/SAM	Herb	Sekar et al. (2012); Jaryan et al. (2013)
698	<i>Tropaeolum majus</i> L.	Tropaeolaceae	EU/SAM	Herb	Jaryan et al. (2013)
699	<i>Turritis glabra</i> L.	Brassicaceae	EU	Herb	Khuroo et al. (2007); Jaryan et al. (2013); Kumar et al. (2013)
700	<i>Typha angustifolia</i> L.	Typhaceae	Trop. America/EU/ NAM	Herb	Khuroo et al. (2007); Jaryan et al. (2013)
701	<i>Urena lobata</i> L.	Malvaceae	AF	Shrub	Khuroo et al. (2007); Sekar et al. (2012); Jaryan et al. (2013)
702	<i>Urtica dioica</i> L.	Urticaceae	AF/EU	Herb	Khuroo et al. (2007); Jaryan et al. (2013)
703	<i>Vallisneria spiralis</i> L.	Hydrocharitaceae	EU	Herb	Khuroo et al. (2007)
704	<i>Verbascum thapsus</i> L.	Scrophulariaceae	EU	Herb	Khuroo et al. (2007); Jaryan et al. (2013)
705	<i>Verbena bonariensis</i> L.	Verbenaceae	SAM	Herb	Khuroo et al. (2007); Jaryan et al. (2013)
706	<i>Vernicia fordii</i> (Hemsl.) Airy Shaw	Euphorbiaceae	AS (China)	Tree	Negi & Hajra (2007)
707	<i>Veronica persica</i> Poir.	Plantaginaceae	AS	Herb	Khuroo et al. (2007); Jaryan et al. (2013)
708	<i>Vicia faba</i> L.	Fabaceae	AS/AF	Herb	Khuroo et al. (2007); Jaryan et al. (2013)
709	<i>Vicia hirsuta</i> (L.) Gray	Fabaceae	EU/NAM/SAM	Herb	Jaryan et al. (2013)
710	<i>Vinca major</i> L.	Apocynaceae	EU	Herb	Khuroo et al. (2007); Jaryan et al. (2013)
711	<i>Viola tricolor</i> L.	Violaceae	EU	Herb	Khuroo et al. (2007)
712	<i>Vitis vinifera</i> L.	Vitaceae	AS/EU	Climber	Khuroo et al. (2007); Jaryan et al. (2013)
713	<i>Vulpia myuros</i> (L.) C.C. Gmel.	Poaceae	EU	Grass	Khuroo et al. (2007); Jaryan et al. (2013)
714	<i>Waltheria indica</i> L.	Malvaceae	Trop. America	Herb	Sekar et al. (2012)
715	<i>Washingtonia filifera</i> (Linden ex André) H. Wendl. ex de Bary	Arecaceae	NAM (Arizona, California)	Tree	Negi & Hajra (2007)
716	<i>Wigandia urens</i> (Ruiz & Pav.) Kunth	Boraginaceae	Central America	Shrub	efloraofindia
717	<i>Wisteria sinensis</i> (Sims) Sweet	Fabaceae	AS (China)	Climber	Negi & Hajra (2007)
718	<i>Wolffia arrhiza</i> (L.) Horkel ex Wimm.	Araceae	AF/EU	Herb	Khuroo et al. (2007)
719	<i>Xanthium strumarium</i> L.	Asteraceae	Trop. America/SAM/ AF/EU	Herb	BSI; Khuroo et al. (2007); Negi & Hajra (2007); Sekar et al. (2012); Jaryan et al. (2013)
720	<i>Youngia japonica</i> (L.) DC.	Asteraceae	Trop. SAM/SAM	Herb	Sekar et al. (2012); Jaryan et al. (2013)
721	<i>Yucca aloifolia</i> L.	Asparagaceae	NAM	Shrub	Khuroo et al. (2007)
722	<i>Yucca gloriosa</i> L.	Asparagaceae	EU/NAM	Shrub	Jaryan et al. (2013)
723	<i>Zannichellia palustris</i> L.	Potamogetonaceae	NAM/SAM	Herb	Khuroo et al. (2007); Jaryan et al. (2013)
724	<i>Zantedeschia aethiopica</i> (L.) Spreng.	Araceae	AF	Herb	Khuroo et al. (2007)
725	<i>Zea mays</i> L.	Poaceae	SAM	Grass	Khuroo et al. (2007); Jaryan et al. (2013)
726	<i>Zephyranthes candida</i> (Lindl.) Herb.	Amaryllidaceae	SAM	Herb	Khuroo et al. (2007); Jaryan et al. (2013); Srivastava et al. (2014)
727	<i>Zephyranthes citrina</i> Baker	Amaryllidaceae	AU	Herb	Jaryan et al. (2013)
728	<i>Zinnia elegans</i> L.	Asteraceae	SAM	Herb	Khuroo et al. (2007)

NA—information not available; Nativity | NAM—North America | SAM—South America | AS—Asia | EU—Europe | AF—Africa | AU—Australia.

Table 2. Dominant families and life forms in the alien flora of Uttarakhand, western Himalaya.

	Family	Climber	Grass	Herb	Sedge	Shrub	Tree	Grand total
1	Fabaceae	3				10	41	89
2	Asteraceae			62		1		63
3	Poaceae		50					50
4	Solanaceae	1		17		11	2	31
5	Malvaceae			19		7	3	29
6	Amaranthaceae	1		27				28
7	Myrtaceae					1	24	25
8	Euphorbiaceae			9		10	5	24
9	Brassicaceae			22				22
10	Cupressaceae					2	19	21
11	Rosaceae	3		3		5	8	19
12	Convolvulaceae	9		5		1	1	16
13	Lamiaceae	2		10		3		15
14	Apocynaceae	2		5		3	4	14
15	Bignoniaceae	5					8	13
16	Pinaceae						11	11
17	Rubiaceae			5		6		11
18	Arecaceae					1	9	10
19	Cyperaceae				10			10
20	Plantaginaceae			8		1		9

Table 3. Life form categorization of alien plant species in different continents or geographical regions.

	Continents	Climber	Grass	Herb	Sedge	Shrub	Tree	Total Species
1	NAM/SAM (Trop. A)	8	7	89	3	17	21	145
2	EU	2	16	72	1	8	5	104
3	SAM	13	4	47	1	9	17	91
4	AS	7	3	8	-	20	42	80
5	NAM	3	5	22	1	15	33	79
6	AF	5	8	18	2	16	27	76
7	AU	1	-	1	-	-	39	41
8	AF/EU	-	-	35	1	2	1	39
9	AS/EU	1	1	8	-	-	3	13

Abbreviations used: Trop. A—Tropical America | NAM—North America | SAM—South America | AS—Asia | EU—Europe | AF—Africa | AU—Australia.

CONCLUSION

Biological invasions have been considered as the second largest threat to global biodiversity after habitat loss, and undoubtedly a huge number of species extinctions are associated with such invasions. Recognising the array of impacts that invasive alien species can have, one needs to reconsider the strategies that have been developed to deal with invasions.

Although, several international and regional programmes such as Global Invasive Species Programme, European Network of Invasive Species, Invasive Species Information Network and regional Eurasian networks have been initiated, little has been achieved in understanding and controlling plant invasions. Regional inventorization of alien flora is now considered a pre-requisite for gaining a better understanding and undertaking appropriate management practices. Also, modelling studies can

Table 4. Details of the alien plant species reported in the India, Uttarakhand and its adjoining states/regions.

	Topic	Area	Family	Genera	Species	Reference
1	Naturalized alien flora	India	-	271	471	Inderjit et al. (2018)
2	Invasive alien plants	Pantnagar, Uttarakhand	30	70	91	Rana & Rastogi (2017)
3	Invasive alien plants	Uttar Pradesh	41	100	149	Srivastava et al. (2014)
4	Alien flora	Himachal Pradesh	85	-	497	Jaryan et al. (2013)
5	Invasive alien plants	Uttarakhand	46	105	163	Sekar et al. (2012)
6	Wild and exotic gymnosperms	Uttarakhand	10	-	63	Tewari et al. (2010)
7	Exotic tree species	Doon Valley	14	-	18	Jaryan et al. (2013)
8	Alien flora	Kashmir	104	352	571	Khuroo et al. (2007)
9	Alien flora	Doon Valley, Uttarakhand	-	-	436	Negi & Hajra (2007)
10	Alien flora	Uttarakhand	108	450	728	Present study

predict the concurrence of invasion hotspots with biodiversity hotspots. Despite a large number of studies undertaken to assess the alien flora of the country, it is submitted that correct identification and authentication of names of several unresolved or illegitimate species, for instance, names of alien plant species such as *Adenostemma houstonianum*, *Anethum scandicina*, *Bignonia anguis-cati*, *Caesulia officinalis*, *Dombeya cayuseii*, *Hibiscus hawaii*, *Lagerstroemia floribunda*, *Luchea endopogon*, *Manihot tweediana*, *Oxalis dehradunensis*, *Oxalis richardiana*, *Peltophorum vogelianu*, *Persia owdenii*, *Phoenix senegalensis*, *Pterospermum semisagittatum*, *Roylea coccinea*, *Siegesbeckia marianum*, *Terminalia calamansanai*, *Terminalia oliveri*, and *Vigna faba* reported by various workers need to be carried out. There is an urgent need to rectify such information gaps to pave the way forward for the correct compilation of regional databases that will in turn strengthen the scientific pool of knowledge and management practices. Uttarakhand is vulnerable to alien plants, and unfortunately the intensity of introductions is expected to escalate rapidly due to climate change and economic developments.

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