
Exotic flora of some grasslands of Nilgiris with their medicinal uses

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Abstract :

In addition to the dominance of indigenous plant species, the grasslands of Nilgiris harbour a considerable number of exotic plants with sizeable number of individuals. In the present study in four major grasslands of Nilgiris, out of 12 exotic species present, 10 are recognized as medicinally important. The family, Asteraceae contributed a higher number of 6 medicinal species to the grassland community. The density of exotics in the studied grasslands is varied between 4 and 66/ha. In order to conserve the native species, the frequent harvesting of useful parts of exotics is suggested. In addition cultivation of these exotics in the degraded grasslands and other suitable habitats in Nilgiris may also reduce the pressure upon the native species and at the same time it will also meet the demand.

Key Words: Exotic medicinal plants, grasslands, Nilgiris.

Introduction :

Over the past two decades invasive non-native (exotic) organisms have come to be recognized as one of the most serious ongoing causes of species declines and native habitat destruction (Vitousek *et al.*, 1997; Wilcove *et al.*, 1998). For managers of parks and reserves, exotic species are an ongoing threat to the persistence of native assemblages because they can consume native species, infect them with disease to which they have no resistance, outcompete them, or alter ecosystem functions, making it difficult and expensive to return the ecosystem to its prior, often more desirable condition (Vitousek *et al.*, 1997). However, in some ecosystems the exotic plant species are

playing positive role in terms of providing economic return to the local people through supplying food, fuel, medicinal plants and control soil erosion (Midgley *et al.*, 1996; Morey and Shaffer (1995). The present study was aimed to know the important exotic species in the grasslands of Nilgiris with respect to their distribution, density and medicinal uses.

Materials and Methods :

For the present study, four major grasslands situated in Ebbenadu (altitude-2100m above m.s.l. with an area of ca. 140ha), Thiashola, (altitude-2100m above m.s.l. with an area of ca. 1600ha), Korakundah (altitude-2150m above m.s.l with an area of ca. 500ha) and Wenlockdown (altitude-2100m above m.s.l with an area of ca. 180ha) were selected in Nilgiri Biosphere Reserve, Tamil Nadu to analyze the exotic flora and their medicinal uses. Intensive field trips have been undertaken between the months April, 2006 and March, 2007 at monthly intervals to enumerate the exotic flora including the ephemerals.

The native/origin place of the exotics is conformed with the publication of Maheswari (1962) and Rao and Suryanarayana (1979). For the density analysis in each grassland, an one ha plot was established in the monsoon month of July, 2006 and the number of individuals of all the exotic plants available with in that plot was enumerated and the values obtained are expressed per hectare.

Results and Discussion :

It is generally considered that in the natural climax communities like the grasslands and shola forests of Nilgiris, the invasion of exotic plant species is too hard or not possible (Tilman, 1997). But due to the influence of human beings and other biological disturbances it is known that the studied grasslands of Nilgiris are invaded by exotic plants to some extent.

In the four studied grasslands of the Nilgiris a total number of 191 species are enumerated. Among them 12 species are recognized as exotics and 10 of them are known to have medicinal uses (Table 1). All the 12 exotic species are herbs/undershrubs in habit and the family, Asteraceae contributed higher number of 6 species to the community. The families Poaceae and Oxalidaceae contributed 2 each to the community. On the other hand, the other two families Myrtaceae and Caryophyllaceae contributed 1 species each to the community (Table 1). The humid condition and high wetness in the soil all around the year and higher seed output by the species may be attributed to possible reasons for the success of the family, Asteraceae in the grasslands of Nilgiris (Senthilkumar *et al.*, 2003). The population density of exotics in the grasslands are varied widely across the species and grasslands studied. The grass, *Cymbopogon citratus* and the Asteraceae member, *Helichrysum bracteatum* are found to have higher population size (46-66 plants/ha) in comparison to other exotics studied

(Table 1). The wide ecological amplitude and higher survivability rate of seedlings/young individuals for the members of these two families may be explained as reasons for this fact (Weaver and Clements, 1929; Saxena, 1991).

Conclusion:

For the conservation of native species in Nilgiri grasslands and also to meet

the demand, two things may be suggested. Firstly, the suppression of growth of the exotic species by the collection of the leaves and other useful parts periodically can encourage the growth and establishment of native species in the grasslands of Nilgiris in the absence or less appearance of exotics. Secondly the cultivation of these exotics in degraded grasslands of Nilgiris further may meet the demand and reduce the pressure upon the indigenous medicinal plants as well.

Table 1.

Distribution and medicinal uses of exotic plant species in the grasslands of Nilgiris.

S. No.	Exotic species	Family	Distribution in Nilgiris	Parts used	Medicinal and other economical uses*	Mode of administration
1	<i>Ageratum conyzoides</i> Linn.	Asteraceae	Ebbenadu (42)	Leaves	Psoriasis, cuts and wounds	Leaf juice
2	<i>Brachypodium sylvaticum</i> Beauv.	Poaceae	Ebbenadu (24) Thiashola (18)	-	-	-
3	<i>Crassocephalum crepidioides</i> (Benth.) S. Moore	Asteraceae	Ebbenadu (11)	Leaves	Applied on cuts	Leaf paste
4	<i>Cymbopogon citratus</i> Stapf.	Poaceae	Thiashola (66) Korakundah (62)	Leaves, oil	Pungent, anthelmintic laxative, bronchitis, leprosy	Oil
5	<i>Erigeron karwinskianus</i> DC.	Asteraceae	Ebbenadu (38)	Leaves	Cuts and wounds	Leaf paste
6	<i>Eucalyptus tereticornis</i> Sm.	Myrtaceae	Ebbenadu (4)	Leaves	Antiseptic, excessive secretion of saliva, whooping cough in rachitic children	Decoction of leaves
7	<i>Gnaphalium purpureum</i> L.	Asteraceae	Ebbenadu (12) Korakundah (11)	Leaves	Cough and colds	Decoction of dried leaves
8	<i>Helichrysum bracteatum</i> (Vent.) Andrews	Asteraceae	Ebbenadu (50) Wenlockdown (46)	Whole plant	Bleeding, Anti-inflammatory	Paste
9	<i>Hypochaeris glabra</i> L.	Asteraceae	Ebbenadu (30) Thiashola (32) Wenlockdown (29)	Leaves, root	Astringent, aperient, diuretic	Root tonic
10	<i>Oxalis corniculata</i> L.	Oxalidaceae	Ebbenadu (33) Thiashola (38) Korakundah (29)	Whole plant	Astringent, vermifuge, antiseptic, cooling, dyspepsia, piles, stomachic, fever, dysentery, scurvy biliousness	Decoction of leaves, juice
11	<i>Oxalis latifolia</i> Kunth	Oxalidaceae	Korakundah (15) Wenlockdown (10)	Whole plant	Antiseptic, paralysis	Paste

*Rusby, H. H. and Detroit, Michigan, M.D. (1885); Anonymous (1940-1976); Jain, S.K. (1996); Maheshwari, J.K. (2000); Sanjay K Singh (2004); Viswanathan, M.B. (2004). The figures in parentheses are the density (plants/ha) of the exotics.

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