

Ethno-medicinal importance and ecological impact of invasive plant species of Durg District of Chhattisgarh

La importancia etno medicinal y el impacto ecológico de las especies de plantas invasoras del distrito de Durg en Chhattisgarh

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ABSTRACT

Invasive vegetation means vegetation that don't stand up clearly in a region but they proliferate within the area wherein they have been delivered and reason several risky influences in the ones new habitats. The resent take a look at gives with the survey of ethomedicinal importance of this invasive vegetation which expands along Durg District of Chhattisgarh (India). The aim of the present paper is to end up aware about and facts the ethnomedicinal importance of these invasive plants. Total 25 invasive vegetation belonging to 13 families i.e. Asteraceae (6), Fabaceae (4), Convolvulaceae (1), Lamiaceae (1), Martyniaceae (1), Asclapidaeae (2), Cleomaceae (1), Euphorbiaceae (2), Verbenaceae (1), Malvaceae (2), Solanaceae (1), Poaceae (1) and Amaranthaceae (1) have been determined abundantly with inside the take a look at site. It is useful that photochemical investigations of these vegetation are important to discover the feasible beneficiary capsules and their authentication for the ethno medicinal claims.

Keywords: Invasive plant, conventional use, Tribes, ecological effect.

RESUMEN

La vegetación invasora es aquella vegetación que no se destaca claramente en una región, sino que prolifera en la zona en la que ha sido introducida, lo que provoca diversas influencias peligrosas en los nuevos hábitats. El presente trabajo analiza la importancia etnomedicinal de esta vegetación invasora que se extiende a lo largo del distrito de Durg en Chhattisgarh (India). Un total de 25 plantas invasoras pertenecientes a 13 familias, es decir, Asteraceae (6), Fabaceae (4), Convolvulaceae (1), Lamiaceae (1), Martyniaceae (1), Asclapidaeae (2), Cleomaceae (1), Euphorbiaceae (2), Verbenaceae (1), Malvaceae (2), Solanaceae (1), Poaceae (1) and Amaranthaceae (1), se han

determinado como abundantes al observar dentro dentro de la zona. Es de gran utilidad que las investigaciones fotoquímicas de esta vegetación descubran las cápsulas beneficiarias factibles y su autenticación para las alegaciones etnomedicinales.

Palabras clave: Plantas invasoras, uso convencional, tribus, efecto ecológico.

INTRODUCTION

Invasive species are the plants that come from outside, spread unexpectedly and cause harm to one-of-a-kind species agencies or whole ecosystems and human being. A large detail of invasive plants delivered intentionally or with the aid of using twist of fate at some stage in the world. These invasive plants cause long-lasting extrude on environment. Many of them are economically beneficial (Das and Duarah, 2013) and some are notorious for its immoderate horrible affects on environment and human beings (Kull et al., 2007; Roder et al., 2007. In India, lists of distribution of invasive species are given with the resource of the use of Nayar, (1977), Raghubanshi, (2005) and Reddy, (2008). Sheikh and Dixit, (2017) said 80 invasive flora belongs to 26 families in Bilaspur District of Chhattisgarh. Sandhya et al., 2006 studied the ethno medicinal importance of flora used by the valaiyan community of Piranmalai hills (reserved wooded location), Tamilnadu, India. Das and Duarah, (2013) said the harmful and beneficial effect of invasive plant in Jorhat of Assam. Similarly, In Chhattisgarh ethnomedicinal studies has been formerly studied with the resource of the use of numerous personnel alongside Agarwal et al., 2010; Tirkey 2006; Kala 2009; Shukla et al., 2008. Similarly ethno-medinal uses of plant had been studied in special part of Chhattisgarh, alongside Bastar (Hemadari et al., 1989), Sarguja (Kumar and Jain, 1998), Achanakmar-Amarkantak Biosphere Reserve, Central India (Tiwari and Bharat, 1998), Raigarah (Jain and Singh, 2009). Dixit and Bhaskar, (2015) moreover supply an account of ethno medicinal use of weed plant in Bilaspur location of Chhattisgarh. Present art work end up achieved to determine ethno medicinal uses invasive species in Chhattisgarh State.

Study Sites: Chhattisgarh is placed in Middle East of India. It is the 10 largest states in India, and lies amongst 21.2787° north and 81.8661° east latitudes with geographical location of 135,194 km². A large detail of Chhattisgarh covers through manner of way of the wooded area; standard 59772 km² areas are recorded as wooded area cover, that's 44.21 % of its standard geographical area. Climate of the dominion is tropical and divisible into three high-quality seasons viz. rainy (July to October) winter (November to February), and summer season (March to June). Temperature of the dominion varies 30 and 48o C in summer season and amongst 0 and 25oC throughout winter. Present check is mainly achieved in Durg district of Chhattisgarh (Figure1). Durg has a variety of 21°1125.62"N and a longitude of 81°175.7"E or 21.190449 and 81.284917 respectively.

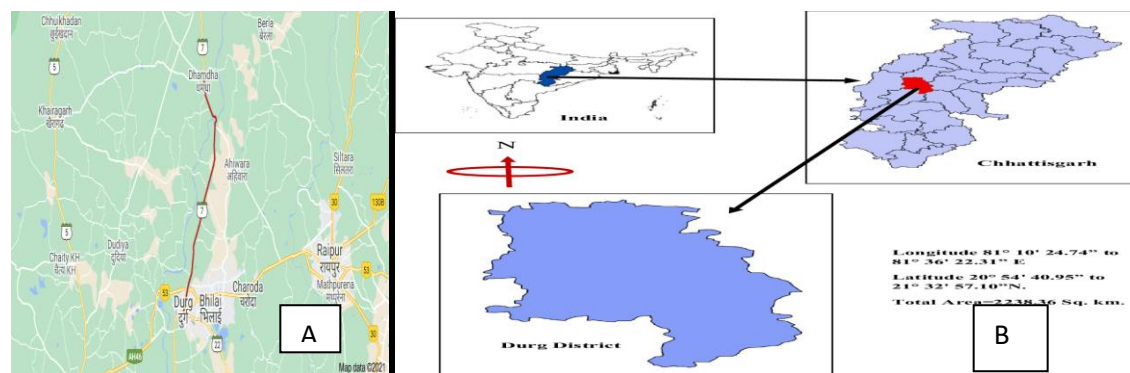




Fig 1: Study site A: Durg Dhamdha road B. Location of Durg District





MATERIALS AND METHODS






A survey of invasive flora of Drug district is made to discover their biodiversity and their therapeutic values and ecological impacts. For this ethno botanical exploration of those floras periodic discipline journeys are accomplishing within side the district throughout 2020-21. For investigatory reason private interviews are achieved with the village dwellers, the natural remedy practitioners and different conventional healers. Plants had been accumulating in flowering and fruiting situations and diagnosed with the assist of flowers of. Murtiand Panigrahi,(1999), Verma et al., (1993); Mudgal et al. (1997), Khanna et. al, (2001). All the invasive species had been organized of their Botanical name, family (as in keeping with APG IV 2016-17), local/vernacular name, nativity, ethno medicinal uses and ecological effect are summarized in Table no. 1




Table 1: Ethno–medicinal importance of invasive plant of Chhattisgarh, India

| Sno | Botanical Name | Family | Local / vernacular Name | Native place | Medicinal uses | Ecological impact |
|-----|--|--------------|-------------------------|----------------------------------|--|---|
| 1. |  Argemone exicana L. | Papaveraceae | Peeli-katili | Tropical Central & South America | Yellow juice of plant applied externally on body for 6-7 days in malaria fever | Reduce crop production and cause allelopat hic effect on seedlings. |
| 2. |  Blumea eriantha DC | Asteracea | Buradi. | Tropical America | Juice of the herb— carminative. A warm infusion of leaves is given as a soporific, while a cold infusion is considered | Aggressive colonizer. Abundant along railway track , road sides and degraded forests land. Rice |

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| | | | | | diuretic. The oil possesses significant antibacterial and antifungal properties. The oil also shows insecticidal activity. | and common kharif weeds |
| 3 | Eclipta prostrata (L.) Mant. | Asteraceae | false daisy | Tropical America | Use for treatment of gastrointestinal disorders, respiratory tract disorders (including asthma), fever, hair loss and graying of hair, liver disorders | It is a common weed of rice (Lee &Moody 1988a&b) |
| |  | | | | | |
| 4 | Parthenium hysterophorus L. | Asteraceae | Gajar-grass | Tropical North America | Decoction of root is useful in dysentery. Leaf juice is applied externally on skin disorder. | Aggressive colonizer. Common weed of cultivated fields, forests, overgrazed pastures, waste lands and gardens. Reduce crop productivity and itching in humans |
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| 5 | Tridax procumbens L. | Asteraceae | Ghamra | Tropical regions of North and South America. | Leaf juice of plant is used to cure wound, dysentery, diarrhea and headaches. | Grow along the road side area, garden and crop field. |
| |  | | | | | |
| 6 | Ageratum conyzoides L. | Asteraceae | Goat weed, Billy goat weed, Jangli pudina | Tropical America | Used against dysentery and diarrhea. It is also an insecticide and nematicide. | It has invaded agricultural fields. It interferes with crops and causes yield reductions of major staple crops of India. When it invades rangeland areas, it out competes native |
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|----|---|-----------------------------------|--------------------|--|---|---|
| 7 | <p><i>Vacchalia nilotica</i> L.</p>  | <p>Fabaceae Mimosoideae</p> | <p>Babool</p> | <p>Africa</p> | <p>This plant has anti-microbial, anti-plasmodial and antioxidant activity and used for treatment of human immunodeficiency virus, hepatitis C virus, cancer venereal diseases, nausea, burns and wounds, stomachache and diarrhea.</p> | <p>grasses causing scarcity of fodder. Its presence has had significant negative impacts on local flora and fauna of the park</p> |
| 8 | <p><i>Senna alata</i> L.</p>  | <p>Fabaceae Caesalpiaceae</p> | <p>candle bush</p> | <p><u>Tropical</u> South America</p> | <p>The plant is traditionally used in the treatment of typhoid, diabetes, malaria, asthma, ringworms, tinea infections, scabies, blotch, herpes, and eczema.</p> | <p>Mostly an environmental weed can impede waterways. Suspected to be toxic to livestock.</p> |
| 9 | <p><i>Senna occidentalis</i> L.</p>  | <p>Fabaceae Caesalpiaceae</p> | <p>Kasunda</p> | <p>Mexico to Tropical America, but now a pantropical introduction.</p> | <p>Flower infusion used in bronchitis disease. Leaves used for the treatment of</p> | <p>Common weed along the road side area.</p> |
| 10 | <p><i>Senna tora</i> (L.) Roxb.</p>  | <p>Fabaceae Caesalpiaceae</p> | <p>Charota</p> | <p>Central America</p> | <p>Leaf paste use in fungal infection, and also used in treating body pain.</p> | <p>Reduce crop production, common along road side and agriculture land.</p> |

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| 11 | Ipomoea carnea Jace.  | Convolvulaceae | Besharam | Tropical America | Decoction of leaf used in asthma, urinary problems and jaundice. Plant was also used for the treatment of leucoderma. | Aggressive colonizer. Common weed of marshy lands and along the edges of tanks and fields , road side; also runs wild in gardens. It ditches and block the drainage system. |
| 12. | Leonotis nepetifolia (L.) R.Br.  | Lamiaceae | Lal Guma | Tropical Africa | Infusion of whole plant is used against fever, cold, coughs and malaria | Reduce crop production. |
| 13. | Martynia annua L.  | Martyniaceae | Bagnakhakanta | Mexico, Central America and the Caribbean | Seed used in snake bite | Commonly grow along the road side area. |
| 14. | Calotropis gigantean (L.) W.T. Aiton  | Asclapadaceae | Aak | Tropical Africa | Decoction of flowers is taken for the treatment of cough and asthma. | Aggressive colonizer. Common weed of marshy lands and along the edges of tanks and ditches.. |
| 16. | Calotropis procera  | Asclapadaceae | Small crown flower or giant milkweed | North Africa | Used for digestive disorders including diarrhea, constipation and stomach ulcers; for painful conditions including toothache, cramps, and joint pain; and for parasitic infections including elephantiasis and worms | Soil erosion control, soil improver and afforestation Calotropis can act as a soil binder and as a nurse crop for more valuable species in afforestation programs |

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|----|---|---------------|-------------------------------------|--------------------------------------|--|---|
| 17 | Cleome viscosa L.  | Cleomaceae | Asian spider flower or tick weed | Tropical America | Used for rheumatic arthritis, hypertension, malaria, neurasthenia, and wound healing. | This species is included in the Global Compendium of Weeds where it is listed as an environmental and agricultural weed with moderate economic impacts principally in rice paddies and sugarcane plantations Randall RP, 2012 |
| 18 | Croton bonplandianum Boil.  | Euphorbiaceae | Ban Tulsi | Temperate South America | Used for controlling high blood pressure, and for the treatment of skin diseases and cuts and wounds, because of the presence of active principle, rutin | Damages the whole ecosystem. |
| 19 | Euphorbia hirta  | Euphorbiaceae | Bara dudhi | Tropical regions of the Americas. | Often used traditiona lly for female disorders, respiratory ailments (cough, coryza, bronchitis, and asthma), worm infestations in children, dysentery, jaundice, pimples, gonorrhoea, digestive problems, and tumors | It present allelopathic effect over desirable cereals, pulses, oilseeds, vegetables, forage plants, and nitrifying bacteria, posing a serious threat to livestock production on open range lands through the release of allelochemicals from roots, stems, leaves, and inflorescence in the rhizosphere |
| 20 | Lantana camara | Verbenaceae | common lantana | Central and South America | <i>Lantana</i> leaves can display antimicrobial, fungicidal and insecti cidal properties. | Aggressive colonizer. Common weed of forests, plantations, habitation, waste lands |

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| |  | | | | Also used in traditional herbal medicines for treating a variety of ailments, including cancer, skin itches, leprosy, chicken pox, measles, asthma and ulcers | and scrubs lands. It significantly slow down the regeneration of forests by preventing the growth of new trees |
| 21. | Malachra capitata L.  | Malvaceae | Van bhindi | America and Africa | Plant used to treat pain, hepatic cirrhosis, inflammation, diarrhea, dementia, pyrexia, ulcer and healing of wounds. | Common weed along the road side area |
| 22. | Sida acuta Burm.f.  | Malvaceae | Wire weed | Tropical America | It is regarded as astringent, tonic, useful in urinary diseases treatment (diuretic) and also stops bleeding bile and liver and nervous diseases treatment (sedative) in Indian traditional medicine (Sreedevi et al., 2009, Govindarajan, 2010) | |
| 23. | Datura alba  | Solanaceae | Thorn apple, jimsonweed (jimson weed) or devil's snare | North America | The seeds of Datura are analgesic, anthelmintic and anti-inflammatory and as such, they are used in the treatment of stomach and intestinal pain | Aggressive colonizer. Common in cultivated fields, scrub lands and waste lands. |

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| 24 | Eragrostis spectabilis  | Poaceae | Purple Love Grass | Tropical West Asia | The seeds have high nutritional value | Very common along streams and banks of rivers |
| 25 | Celosia argentea L.  | Amaranthaceae | plumed cockscomb or silver cock's comb | Tropical Africa | used in traditional medicine to cure many diseases such as jaundice, gonorrhoea, wounds, fever, inflammation, itching, mouth sores, and diarrhoea. | <p>their Allelopathic effects on seed germinations physiology and metabolisms of various crop plants</p> <p>their Allelopathic effects on seed germinations physiology and metabolisms of various crop plants</p> <p>Allopathic effect on seed germination, physiology and metabolism of various crop plants</p> |

In the present study 25 invasive plants of 13 families were recorded from the road side areas of the study site. The most dominant family was Asteraceae (6), Fabaceae (4) and Euphorbiaceae (2) (Table -1). All the recorded invasive species of the study area are used by the ethnic communities as ethno remedy. They are used to cure different common diseases including gastrointestinal disorders, respiratory tract disorders (including asthma), fever, hair loss and graying of hair, liver disorders etc. These plants induce harmful ecological impact on our biodiversity which includes reduction in crop production, degradation in native plant species, block of drainage systems.

CONCLUSIONS

Present study revealed that all the invasive plants listed in present paper are medically important. The various parts of that plants such as roots, stem, flowers, leaves, fruits and seeds are used as medicine for treatment of various diseases. These invasive plants have valuable medicinal uses, which helps to discover the possible beneficiary drugs and their authentication for the ethnomedicinal claims. Due to ethnomedicinal importance of

these invasive plants, it is not appropriate to classify them as 'harmful plants' although they have some negative ecological impact.

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