INVASIVE ALIEN WEEDS AND THEIR ETHNO-BOTANICAL IMPORTANCE OF VIJAYAMANGALAM VILLAGE, ERODE DISTRICT

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ABSTRACT

The present study deals with comprehensive list of Invasive alien plants of Vijayamangalam village, Perundurai taluk, Erode district with background information on family, habit and nativity. A total of 50 invasive alien species under 40 genera, belonging to 18 families have been recorded. While in life form analysis, the herbs (40 species) are dominant, followed by shrubs (6 species), Climber (2 species), Trees (2 species).

Key words: Invasive alien species, Vijayamangalam, family, nativity.

1. INTRODUCTION

Alien species are non-native or exotic organisms that occur outside their natural adapted ranges and dispersal potential. Many alien species support our farming and forestry systems in a big way. However, some of the alien species become invasive when they are introduced deliberately or unintentionally outside their natural habitats into new areas where they express the capability to establish, invade and out compete native species. International Union for Conservation of Nature and Natural Resources (IUCN) defines Alien Invasive Species as an alien species which becomes established in natural or seminatural ecosystems or habitat, an agent of change, and threatens native biological diversity. These invasive are widely distributed in all kinds of ecosystems throughout the world, and include all categories of living organisms. Nevertheless, plants, mammals and insects comprise the most common types of invasive alien species in terrestrial environments (Raghubanshi et al., 2005). Exotic weeds cause loss of biodiversity including species extinctions and changes in hydrology and ecosystem function. Some alien or exotic weeds could affect ecosystem properties by bringing nutrient to the surface from deep in the soil, thus serving as “pumps” which keep high levels of essential nutrients in circulation.

Many agriculturists have recognized that weeds despite their nuisance value do at times serve some useful purpose. Weeds often provide a protective cover against surface washing and run off. Moreover weeds are frequently used in the form of mulch around cultivated plants. Some antibiotics, as well as bio pesticides have been extracted from weeds. Apart from this many weeds are used as high poison, green manures and pollution indicators.

Weeds are comprised of the more aggressive, troublesome and undesirable elements of the World’s vegetation. More than 80% of the developing world continues to rely on traditional medicines predominantly plants, for primary healthcare. The global demand for herbal medicine is not only large, but also growing. The market for Ayurvedic medicine is estimated to be expanding at 20% annually in India (Jeeva et al., 2006).

2. METHODOLOGY

2.1. Study area

The study area Vijayamangalam village located in Perundurai taluk under Erode district. The major occupation of the peoples is agriculture and Hand loom weaving. Erode experiences hot and dry weather throughout the year. The temperature ranges from a maximum of 96°F (36°C) to a minimum of 80°F (27°C).

Field trips were made during the study period 2012-2013. The entire area was covered at different seasons. Specimens collected from the study area were identified carefully using the Flora of the Presidency of Madras by J.S. Gamble & C.E.C. Fischer (1915-1935), Flora of Tamil Nadu Carnatic by K.M.Mathew, (1983). Identity of the plants was confirmed after critical studies with reference to authentic materials available in the Herbarium of The Botanical Survey of India, Southern circle, Coimbatore (MH) and Herbarium of Kongunadu Arts and Science College, (KASCH).
3. RESULTS

The weeds, which are best known and most highly regarded in traditional medicine, are enumerated with botanical name, local name (in Tamil), family, medicinal uses and nativity. 50 medicinal weed species belonging to 18 families and 40 genera have been recorded (Table-1). Amaranthaceae was the dominant family with 12 species, followed by Asteraceae (7 species), Malvaceae, Caesalpinaceae, Asclepiadaceae, Convolvulaceae and Nyctanginaceae (3 species each). 5 families were represented by 2 species and 6 families represented by single species. Most of the medicinal plants are common are growing in wild condition as weeds.

4. DISCUSSION

Alien species are non-native or exotic organisms that occur outside their natural adapted ranges and dispersal potential (McGeoch et al., 2010). Many alien species support our farming and forestry systems in a big way. However, some of the alien species become invasive when they are introduced deliberately or unintentionally outside their natural habitats into new areas where they express the capability to establish, invade and out-compete native species. International Union for Conservation of Nature and Natural Resources (IUCN) defines Alien Invasive Species as an alien species which becomes established in natural or semi-natural ecosystems or habitat, an agent of change, and threatens native biological diversity. These invasive are widely distributed in all kinds of ecosystems throughout the world, and include all categories of living organisms. Nevertheless, plants, mammals and insects comprise the most common types of invasive alien species in terrestrial environments (Raghubanshi et al., 2005).

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### Table 1. Ethnomedicinal uses of Invasive Alien plants in Vijayamangalam, Erode District.

| S. No | Botanical name       | Family          | Habit      | Medicinal uses                                                                 | Native                  |
|-------|----------------------|-----------------|------------|--------------------------------------------------------------------------------|-------------------------|
| 1.    | Argemone Mexicana    | Papaveraceae    | Herb       | Latex of the plant is applied topically on the site of boils                     | Trop. Central & South America |
| 2.    | Cleome viscosa       | Capparidaceae   | Herb       | Plant is used in various disorders such as diarrhoea, fever, inflammation, liver diseases, bronchitis, skin diseases, and malarial fever. | Trop. America           |
| 3.    | Gynandropsis pentaphylla | Capparidaceae | Herb       | The decoction of leaves is used in chronic fever. Leaves areapplied to prevent the pus formation of boils. The juice of the leaves is poured into ears for earache and otalgia. The seeds paste is applied externally to expel the vermin from the hairs. | Trop. America           |
| 4.    | Abutilon indicum     | Malvaceae       | Shrub      | Demulcent, aphrodisiac laxative, diuretic, sedative, astringent, expectorant, tonic, anti inflammatory, anthelmintic, and analgesic. | Trop. America           |
| 5.    | Sida acuta           | Malvaceae       | Herb       | Flowers paste is given in boils and burns. Root paste is applied in snake bite. Leaf is given in gastric disorder and stomach pain | Central America         |
| 6.    | Malvastrum coromandelianum | Malvaceae | Herb       | Leaves used to clean wounds; also used for dysentery.                            | America                 |
| 7.    | Tribulus terrestris  | Zygophyllaceae  | Herb       | Root is used as Urinary stones, infections.                                       | Trop. America           |
| 8.    | Abrus precatories    | Fabaceae        | climber    | Skin related problems, Scratches from pet animals, Abdominal Pain To treat urinary problems. A poultice made from the roots is applied to painful swelling of joints, and an extract of the leaves is taken as a vermifuge. | Indonesia               |
| 9.    | Crotaleria pallida   | Fabaceae        | Shrub      | Leaf is useful in night blindness and leaf paste is used in cuts, boils, burns and as antiseptic treatment. Seed is given in stomach pain. Root is given in fever and abnormal child growth. | Africa                  |
| 10.   | Cassia tora          | Caesalpinaceae  | Herb       | Leaves used to cure Skin diseases, Antiperiodic.                                  | Trop. South America     |
| 11.   | Cassia occidentalis  | Caesalpinaceae  | Herb       | The root is pasted with cumin and taken internally to treat stomach burning after a meal. | Trop. America           |
| 12.   | Cassia hirsuta       | Caesalpinaceae  | Herb       | Gargle for toothache, gum disorders, toothbrush. To treat eye conditions, open wounds and dermatological ailments. | Trop. America           |
| 13.   | Acacia nilotica      | Mimosaceae      | Tree       | Anti-diabetic, anti-inflammatory, analgesic, galactogogue, hypoglycemic, antiviral and anti-oxidant. | Trop. America           |
| 14.   | Prosopis juliflora   | Mimosaceae      | Tree       | Decoction of fruit used for asthma and biliousness. Leaves applied to the head for headaches and giddiness. | Trop. America           |
| 15.   | Opuntia dillenii     | Cactaceae       | Herb       | The crushed herb is used in the form of a paste to treat skin ailments and the leaf juice is reportedly used to relieve fevers. | Trop. America           |
| 16.   | Passiflora foetida   | Passifloraceae  | Herb       | Trop. South America                                                              |
| 17.   | Acanthospermum hispidum | Asteraceae | Herb       | Brazil                                                                           |
| No. | Species Name                  | Family       | Type     | Uses                                                                                   | Location          |
|-----|------------------------------|--------------|----------|----------------------------------------------------------------------------------------|-------------------|
| 18  | Ageratum conyzoides          | Asteraceae   | Herb     | The leaves are used in leprosy and uterine disorder, also used in killing the hairs lice. Leaf paste is applied on cuts, wounds, and burns. Leaf juice is useful skin disease and scabies disease. Plant juice is used externally to treat cuts and wounds. | Trop. America     |
| 19  | Ageratum houstonianum        | Asteraceae   | Herb     | Laxative, fattening, anthelmintic, alexiteric, tonic, digestive, antipyretic, and improves appetite, voice, complexion, and memory. | Trop. America     |
|     | Xanthium strumarium          | Asteraceae   | Herb     | Flowers are useful in nasal block in cold. Leaves mixed with two or three pieces of garlics and made into fine paste, the paste is squeezed juice put in ear to stop pus flow. | Trop. North America |
| 20  | Parthenium hysterophorus     | Asteraceae   | Herb     | Paste of leaf is given in boils, cuts & wounds. Leaf is also useful in diarrhea, dysentery and leprosy. | Trop. Central America |
| 21  | Lagascea mollis              | Asteraceae   | Herb     | Leaf paste is given in cuts and wounds. Flowers are given for ear complaints. | Trop. Central America |
| 22  | Tridax procumbens            | Asteraceae   | Herb     | The whole plant is used to cure cancer and diabetic | Trop. Central America |
| 23  | Catharanthus pusillus        | Apocynaceae  | Herb     | Leaves can be treat diarrhea among children, intestinal worms. Root is used Eczema, leprosy, elephantiasis, asthma, cough and rheumatism, To treat common diseases such as fever, rheumatism, indigestion, cold, eczema and diarrhea. | Trop. America     |
| 24  | Daemeia extensa              | Asclepiadaceae | Climber | Leaves are ground and 30 ml of the extracted juice is taken once a day till cure jaundice. | Trop. Africa      |
| 25  | Calotropis procera           | Asclepiadaceae | Shrub   | The fresh plant extract is mixed with gingelly oil and is used to cure cold, asthma and dry cough. | Trop. Africa      |
| 26  | Calotropis gigantean         | Asclepiadaceae | Shrub   | The paste of plant is applied on chronic ulcer, wounds. Poultice is applied on painful inflammations. The fresh leaves are boiled with gingelly oil and applied topically on joints to cure swellings. | Mediterranean T. America |
| 27  | Ipomea obscura               | Convolvulaceae | Herb   | Leaves are used antiepileptic and antiseptic, itching and skin affections puerperal diseases, digestive tonics, ulcers, fevers, wounds, other ailments and general debility. | T. America        |
| 28  | Merremia aegyptia            | Convolvulaceae | Herb   | The leaves are used antiepileptic and antiseptic, itching and skin affections puerperal diseases, digestive tonics, ulcers, fevers, wounds, other ailments and general debility. | T. America        |
| 29  | Cuscuta chinensis            | Convolvulaceae | Herb   | The leaves are used antiepileptic and antiseptic, itching and skin affections puerperal diseases, digestive tonics, ulcers, fevers, wounds, other ailments and general debility. | T. America        |
| 30  | Datura metal                 | Solanaceae   | Shrub    | Leaves are used antiepileptic and antiseptic, itching and skin affections puerperal diseases, digestive tonics, ulcers, fevers, wounds, other ailments and general debility. | T. America        |
| 31  | Martynia annua               | Pedaliaceae  | Herb     | Leaves are used antiepileptic and antiseptic, itching and skin affections puerperal diseases, digestive tonics, ulcers, fevers, wounds, other ailments and general debility. | T. America        |
| 32  | Pedalium murex               | Pedaliaceae  | Herb     | Leaves are used antiepileptic and antiseptic, itching and skin affections puerperal diseases, digestive tonics, ulcers, fevers, wounds, other ailments and general debility. | T. America        |
| 33  | Pedalium murex               | Pedaliaceae  | Herb     | Leaves are used antiepileptic and antiseptic, itching and skin affections puerperal diseases, digestive tonics, ulcers, fevers, wounds, other ailments and general debility. | T. America        |
| No. | Scientific Name         | Family            | Type  | Description                                                                                                                                                                                                 | Region     |
|-----|------------------------|-------------------|-------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|
| 34. | *Lantana camera*       | Verbenaceae       | Shrub | Leaves are used to treat cuts, rheumatism, ulcers, catarrhal infection, tetanus, rheumatism, malaria, cancer, chicken pox. Whole plant is used for hepatitis and against abscess. Leaves are used against anti dote for snake sting. | Trop. America |
| 35. | *Lippia nodiflora*     | Verbenaceae       | Herb  | Whole plant is used for hepatitis and against abscess. Leaves are used against anti dote for snake sting.                                                                                                 |            |
| 36. | *Boerhaavia diffusa*   | Nyctanginaceae    | Herb  | Whole plant is used Jaundice, eye complaint, child birth and liver complaint.                                                                                                                                | Trop. America |
| 37. | *Boerhaavia verticillata* | Nyctanginaceae | Herb  | Root pieces are kept in the mouse to cure mouth ulcers.                                                                                                                                                   | Trop. America |
| 38. | *Mirabilis jalapa*     | Nyctanginaceae    | Herb  | The leaves are used to reduce inflammation. A decoction of them (mashing and boiling) is used to treat abscesses. Leaf juice may be used to treat wounds. Treatment of diabetes mellitus, urinary calculi, hæmorrhage, bronchitis, nasal bleeding, cough, scorpion stings, fractures, spermatorrhea, to clear uterus after delivery and also to prevent lactation. | Peru       |
| 39. | *Aerva lanata*         | Amaranthaceae     | Herb  | Whole plant is used for hepatitis and against abscess. The herb is used for diuretic and demulcent. Its decoction is used remove swellings.                                                            | Trop. America |
| 40. | *Aerva tomentosa*      | Amaranthaceae     | Herb  | Leaves and stem used for Urine complaints.                                                                                                                                                                | Trop. America |
| 41. | *Alternanthera paronychioides* | Amaranthaceae | Herb  | Leaf decoction used for Diuretic, decoction in gonorrhea.                                                                                                                                                  | Trop. America |
| 42. | *Alternanthera pungens* | Amaranthaceae     | Herb  | Whole plant used for Allelopathic.                                                                                                                                                                         | Trop. America |
| 43. | *Alternanthera philoxeroides* | Amaranthaceae | Herb  | The paste of the root is applied on scorpion sting. It is used as a potherb for the alleviation of heat from the body. It is also supposed to be effective in kidney and gall bladder stones when used as potherb. | Trop. America |
| 44. | *Amaranthus viridis*   | Amaranthaceae     | Herb  | Plant is used as potherb and reported as a laxative agent.                                                                                                                                                 | Trop. America |
| 45. | *Digera muricata*      | Amaranthaceae     | Herb  | Leaves are also used for gastroenteritis, gall bladder inflammation, abscesses, arthritis and for the treatment of snakebites. asthma, bleeding, in facilitating delivery, boils, bronchitis, cold, cough, colic, debility, dropsy, dog bite, dysentery, ear complications, headache, leucoderma, pneumonia, renal complications, scorpion bite, snake bite and skin diseases | SW Asia    |
| 46. | *Alternanthera tenella* | Amaranthaceae     | Herb  | The paste of the root is applied on scorpion sting. It is used as a potherb for the alleviation of heat from the body. It is also supposed to be effective in kidney and gall bladder stones when used as potherb. | Trop. America |
| 47. | *Celosia argentea*     | Amaranthaceae     | Herb  | Seeds traditionally used for treatment of jaundice, gonorrhea, wounds and fever.                                                                                                                         | Trop. Africa |
| 48. | *Amaranthus spinosus*  | Amaranthaceae     | Herb  | Leaves are also used for gastroenteritis, gall bladder inflammation, abscesses, arthritis and for the treatment of snakebites. asthma, bleeding, in facilitating delivery, boils, bronchitis, cold, cough, colic, debility, dropsy, dog bite, dysentery, ear complications, headache, leucoderma, pneumonia, renal complications, scorpion bite, snake bite and skin diseases | Trop. America |
| 49. | *Achyranthes aspera*   | Amaranthaceae     | Herb  | Stimulate menstruation, ease menstrual pain, relieve lower back pain, canker sores, toothache, bleeding gums, nosebleeds.                                                                                 | Trop. America |
| 50. | *Achyranthes bidentata* | Amaranthaceae     | Herb  |                                                                                                                                                    | Trop. America |