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Wild Amaranthaceous Herbs as A Source of Medicine Need Conservation in Rampur District (U.P.), India

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Abstract

Local people exploit forest herbs, particularly those that are more in demand and valuable, without regard for systematic exploitation or sustained yield. Medicinal plants are traded mostly in the form of barks, roots, twigs, leaves, flowers, fruits and seeds. Often, however, collection of many medicinal plants is made illegally. Since there is no scientific system of collecting or regenerating these plants, several plants have either been completely lost or have become endangered. A study of wild medicinal plants belonging to Amaranthaceae family growing in Rampur District was carried out during the year 2016. A total of 7 species under 5 genera were collected and identified which were used by local people to treat various types of ailments. *Achyranthes aspera* L. is mainly used against bronchial affections, urinary diseases, colic, wound wash, stomachache, snake bite, boils and skin eruptions. *Aerva lanata (L.) Juss.* is used to treat vermifuge, headache, cough, sudden swellings and urinary bladder. *Alternanthera philoxeroides* (Mart.) Griseb. is used to cure dysentery, diarrhea, malaria, postnatal complaints, coughing up blood, cold, measles, eczema, and snake bite. *Alternanthera sessilis* (L.) R.Br. ex DC is used to treat snake bites, vomiting of blood, febrifuge, piles and urinary disorders. *Amaranthus spinosus* L. is used for toothache, eczema, menstrual flow, leprosy and leucorrhoea. *Amaranthus viridis* L. is used in treatment of dysentery, constipation, dysentery, eczema, anemia, leprosy, vermifuge, inflammation, bronchitis and also to purify the blood. *Gomphrena celosioides* Mart. is used to cure skin problems in cattle, hay fever, asthma and a range of skin problems in humans. Rapid utilization of above wild medicinal angiosperms will cause extinction of these species from the area. Therefore, these species should be cultivated either in field or as a home garden for future generations.

Keywords: *Conservation, Wild Amaranthaceous, Herbs, Medicine, Rampur District.*

1. Introduction

Herbal medicines have gained popularity over conventional medicines owing to their reduced risk of side effects, effectiveness with chronic conditions, lower cost and widespread availability. A family of about 65 genera and 900 species, Amaranthaceae are mostly distributed in tropical but also in temperate regions. About 18 genera and over 50 species have been reported from India. The studies on Family Amaranthaceaehave been carried out by various researchers and a wide spectrum of its pharmacological actions have been explored which may include antidiabetic, antitumor, analgesic, antimicrobial, anti-inflammatory, bronchodilator, hepato-protective,antifertility, antimalarial, antioxidant propertiesetc. India has its long tradition and history of health care through herbal drugs and even today more than 76% of rural population depends for their health care needs on plants. The medicinal plants are well studied and reported by many renowned scientists like Kirtikar and Basu (1987), Chopra & Verma (1969), Joshi (2002), Dhiman (2005), Singh (2008),Daboriya Singh (2009), Gupta (2010) and Beena kumari (2010) in various parts of India.

District Rampur is located between Longitude 79°05' East and Latitude 28°48' North, spread in area of 2367 Sq. Km falls in Moradabad Division of Uttar Pradesh State. It was incorporated into the state of U.P. in 1949. It is home to farms that cover long stretches of land. The height from sea level is 192 Meter in north and 166.4 Meter in South. It is known for its various industries, including sugar refining and cotton milling. The district comprises of six tehsils: Rampur, Bilaspur, Milak, Shahabad, Swar and Tanda. It is surrounded by District Udham Singh

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Nagar in North, Bareilly in East, Moradabad in West and Badaun in South. Situated on the national highway 24, the state capital is 302 km in East and national capita is 185 km in West. During Summers the temperature is usually from 44.2 ℃ to 30 ℃ and during Winters it is from 23 ℃ to 5 ℃. Vegetation is highly dependent on rainfall, which is, in most cases, seasonal and erratic. The average rainfall varies between 800 to 900 mm. The relative humidity is up to 90% in monsoon season and in drier part of the year it decreases to less than 20%.

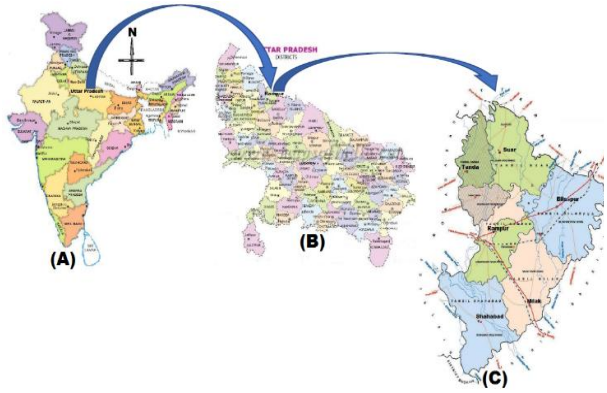

Fig1: Map of Rampur District

2. Materials and Methods

The present study is based on the intensive survey of the area during the year 2016. The collected specimens were identified and consulted with the help of literature (Babu, 1997; Joshi, 2002; Dhiman. 2005; Gupta, 2010). Medicinal uses and data about the treatment of various aliments based on the information gathered from Hakims and old ladies (Daies).Later on,all the collected plant specimens were kept in the Herbarium, Department of Botany, Hindu College Moradabad, UP.

3. Results and Discussion

From the study area, it is noticed that 7 species under 5 genera belonging to the family Amaranthaceae play an important role for treatment of different diseases by rural people.

3.1 *Achyranthes aspera* L. (Local name: Latjira)
Taxonomic description: A perennial herb or undershrub, 30-90 cm tall, striate sub-cylindric branches. Leaves few, elliptic or obovate, round at the apex, generally thick, softly pubescent, tomentose or velvety; flowers small in slender, elongated spikes, deflexed, bracts and bracteoles persistent, ending in a spine.**Fl. & Fr.:**Aug to Nov**., Habitat:** Roadsides, open places and waste places.
Medicinal uses: Whole plant extract possesses antifungal properties, is mainly used against bronchial infections, urinary diseases, colic, wound wash, stomachache, snake bite, boils and skin eruptions. The leaves juice is given in early stages of diarrhoea, dysentery, rheumatism and. inflammation of internal organs Root paste is applied on mouth sores, toothache and syphilitic sores. Ash is used as an external application on piles and as an expectorant (Dhale and Bhoi, 2013; Reddy,2011).Decoction of root and stem is administered orally to cure infertility in women. The fresh leaf extract, with a pinch of powdered kala namak is used to improve lost appetite. (Khan and Alam, 2003)

3.2 *Aerva lanata* (L.) Juss.(Local name: Chaya)
Taxonomic description: An erect or suberect or annual or perennial herb, sometimes with woody base, 10-15 cm. high. Inflorescence sessile, axillary heads or spikes. Fruit an utricle, broadly ovoid, acute, about 1 mm in diameter. Seeds reniform, black, shining, smooth in the center, faintly reticulate around the margin, stem branches from the bottom and leaves are oppositely whorled, woolly, sessile, sub-lunate, linear, abaxially, white lanose, adaxially glabrous, bracts and bracteoles lanceolate and tomentose throughout and appear smaller at the flowering branches, Flowers are very small, sessile, bisexual, appear green to dull white in color and appear clustered in spikes.Fl. & Fr.April to July. Habitat:Waste places, roadsides and scrub places.
Medicinal Uses: The plant extract is used to cure vermifuge, stones in urinary bladder and kidney. Leaves paste applied on sudden swellings, wounds and curing various Skin inflammations like Boils (Sharma et al., 2010; Agrawal, 2013; Rajesh et al., 2014; Nagaratna et al., 2015).

3.3 *Alternanthera philoxeroides* (Mart.) Griseb.(Local name: Malancha shak)
Taxonomic description.Perennial herb, 50-120cm long. Stem base like creeper, roots borne at joints, upperpart erect, hollow, with branches, young stem and axil white or reddish-brown hairs,glabrous when old. Leaves opposite; petioles 3-10mm long, leaves obovoid or obovoidlanceolate,3-5cm long, 1-1.8cm wide, apex obtuse, with tips, base gradually narrow,margin narrow, upper with adnate hairs, margin with hairs.Inflorescence a head, head solitary at axil,common pedicel 1-4cm long, bracts and bracteoles dry membranous, white, persistent;tepals white, oblong; stamens 5; filaments base connate to cup-shaped, anthers 1-chambered, degenerative

stamens top divided into narrow strip; Ovary pyriform slightly compressed, stigma large, globose,ovary 1-chamberedwith short stalk and 1 ovule, stigma nearly sessile. Fl. & Fr.Mar to Jun. **Habitat:** Slow moving shallow water, ditches and wet soil.
Medicinal Uses: Stem and leaves smashed to extract juiceis taken to cure dysentery, diarrhea, malaria, postnatal complaints, puerperal fever, coughing up blood, hematuria, and measles. Leaves paste applied externally on itching or eczema and venomous snake bite (Fatima Khatun 2012).

3.4 *Alternanthera sessilis* (L.) R.Br. ex DC (Local name: Gokula)
Taxonomic description: Perennial much branched, prostrate or ascending herb. Leaves opposite, 2.5-7.6 cm long, somewhat fleshy, linear-oblong or lanceolate. Flowers white in small axillary sessile heads.pale yellowish brown externally, whitish internally, camphoraceous odorous, it has many branches, branched from the root base; pubescent/ woolly-tomentose, striate. Leaves are simple, alternate, entire margin, lamina is elliptic or obovate or sub orbicular, obtuse or acute apex, tapering base, hairy above and more/ less white cottony beneath, short petiole, exstipulate. Spicate inflorescence, forms sub-globose clusters bearing numerous flowers. Flowers are very small, sessile, usually bisexual, greenish/ hoary white. Stamens & perianth are five lobed, ovoid/ sub-globous ovaries. Fruits are greenish, round, compressed membranous utricle capsule with a coriaceous upper part/ lid containing a single seed. Seed are Reniform, shining black coriaceous testa. Fl. & fru. Apr to Oct. **Habitat:** Wet paddy fields and lowlands.
Medicinal uses: A decoction of the entire plant with little salt is drunk to check blood vomiting, febrifuge, piles and widely used in urinary disorders and also to treat snake bites. A paste of the plant is applied on the sinus for the treatment of piles. Infusions of the herb is taken internally to reduce fever and inflammation of the intestines. (Gupta, 2014; Soewardi et al., 1982).

3.5 *Amaranthus spinosus* L. (Local name: Katili cholai)
Taxonomic description: An annual spinescent herb, 30-60 cm high. Leaves 3.75 cm long, ovate or oblong, obtuse. Flowers very numerous, sessile, in dense axillary clusters and in terminal dense or interrupted spikes.Stem are terete or obtusely angular, glabrous or slightly pubescent, green, reddish-brown, glabrous, and branched. The leaves alternate and are simple without stipules; petiole is approximately as long as the leafblade16-17.The blade shape is ovate-lanceolate to rhomboid, acute and often slightly decurrent at base, obtuse, rounded or slightly ret use and often short mucronate at apex, entire, glabrous or slightly pubescent on veins when young. The inflorescence is terminal and axillary, spike-like, erect, slender and elongated, with remote axillary spikes at base, lower clusters, pistillate, upper staminate., Fl. & Fr.Throughout the year**Habitat:** Waste land, roadsides, fields and gardens.
Medicinal uses: Decoction of the herb is used as a mouth-wash for toothache. It is also given to females after child birth to induce milk and menstrual flow.The root is heated and made powder, orally taken to cure leucorrhoea and gonorrhea. (Barku et al. 2013. Ghosh et al 2013, Mitra 2013).

3.6 *Amaranthus viridis* L.(Local name: Jangli cholai)
Taxonomic description: An erect glabrous, branching, annual, 30-70 cm tall. Leaves long-petioled, ovate, 2.5-5 cm, variable in breadth. Flowers pale-green tinged with red, lower clusters axillary, upper in interrupted spikes or panicles, sepals 3-4, apex acute. Fruit subglobose, 1.3-1.5 mm long, seeds dark brown to black, more or less shiny, slightly compressed, 1-1.3 mm long, reticulate and with shallow outgrowths on the reticulum. Fl. & fr.Feb to Oct. **Habitat:**waste places, roadsides
Medicinal uses: The root juice is used to treat inflammation, vermifuge, urination and constipation. The pounded root is applied against dysentery. The leaves are used in poultices (fresh or as dried powder) to treat boils, eczema and leprosy. The leaf sap is used as an eye wash to treat eye infection. Cooked leaves are used in treatment of anemia, bronchitis and also to purify the blood. Powder of dried fruit or seeds mixed with sugargiven to patients suffering from vision problems (Tanaka et al., 2007).

3.7 *Gomphrena celosioides* Mart.(Local name:wolly)
Taxonomic description: A perennial, prostrate to ascending suberect herb, upto 30 cm long, much branched from the base and above. Fruit a capsule, shortly compressed, pyriform, 1.6 to 2.5 cm long. Seeds compressed, ovoid, faddish-brown, shining, faintly lenticular.**Fl. & Fr.**Jun to Oct. **Habitat:** Waste lands, roadsides, dry sandy soil.
Medicinal Uses: It is used to cure skin problems in cattle, hay fever, asthma and a range of skin problems in humans. Juice of whole plantalong with *Piper nigrum* Linn. And lemonjuice isused for the treatment of kidney stone and urinary tract troubles. Decoction of whole plant, together with *G. globosa*, applied to gangrenous wounds and diabetes. (Cheryl,2006; Prachi, *et al.*, 2009)

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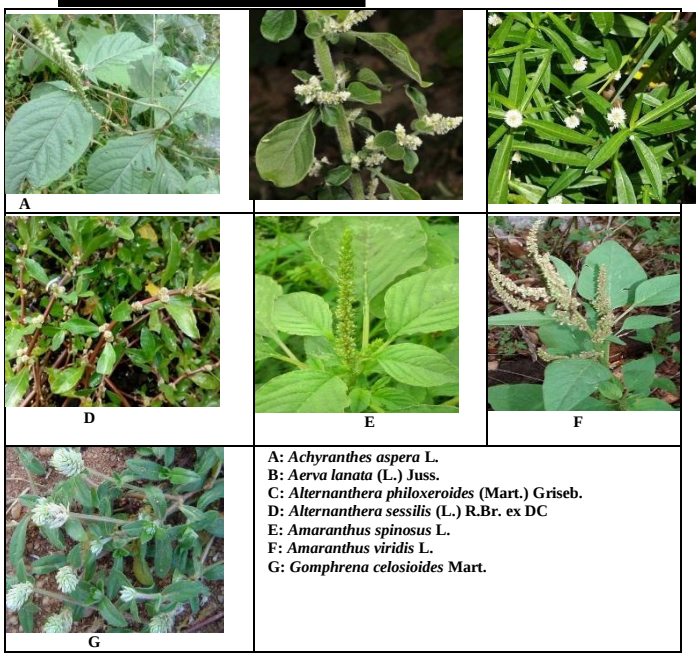

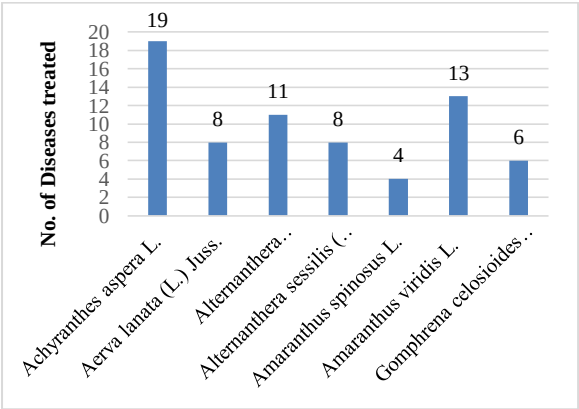

Fig2: No. of diseases treated by different wild amaranthaceous herbs.

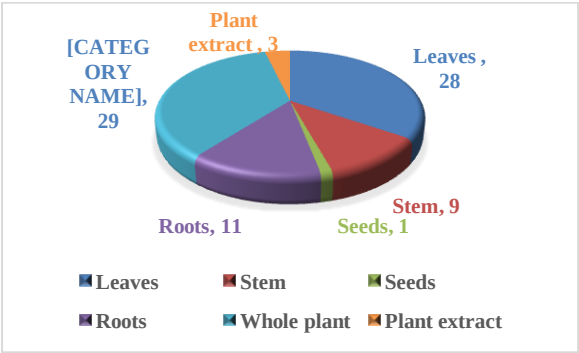

Fig3: No. of diseases treated by different plant parts

4. Conclusion

The present study may be a preliminary contribution of this area using standard research methods, focusing on medicinal plants and their local uses for the healthcare. This detailed information will be helpful for the pharmacognosist, botanist, ethno-botanist and pharmacologist for the collection and identification of the plant for their research work and isolation of plant products benefitting human health. The result obtained in the investigation also need to be rigorously subjected to pharmachemical analysis in order to validate their authenticity and future prospects.

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