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AN OBSERVATIONAL STUDY OF TRADITIONAL AND REPORTED HEALTH BENEFITS OF ETHNOMEDICINAL PLANT AMARANTH FOUND IN SARGUJA CHHATTISGARH

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ABSTRACT

Natural medications are considered as an extraordinary demand in both developing and developed nations for essential medical care due to their characteristics having therapeutic benefits, least side effects, and lesser expenses. Individuals living in rural areas of the Sarguja region rely to a great extent upon natural medicines for treatment. The present study concerns the collective information of pharmacognostic characteristics, phytoconstituents and the biological activity of *Amaranthus spinosus* L. We have also included a minor study report about the ethnic use of amaranth plant. This study cum review report will surely help the budding researchers to render a scientific background to the traditional knowledge for the benefit of mankind.

Keywords: Medicinal plant, Rural area, *Amaranthus spinosus*, Ethnic use, Scientific background

INTRODUCTION

Ethno phytology is the learn about of correlation between plants and other people particularly within the social group and ancient situation. The World Health Organization has considered ancient drugs a vital issue to attain health goals. 65% of the

the agricultural populace in Asia specifically use healthful flora for treating several ailments. Indian system of medicinal drug derives several of their healing resources from plant origin that are used as medicine **[1]**.

The Indian systems of medication still offer treatment to majority of the folks on account of their cheaper price with no facet effects. Flavored medicine obtained is safer within the behavior of assorted diseases. The folks of rural asiannation are silent captivated with ancient drugs for his or her health care and treatment of diseases. These have developed through expertise and fragments of ayurvedic, unani and social group systems of medication **[2]**.

Many of the folk healers still continue genuine traditional practice that renders phenomenal treatment to such a large number of persistent diseases. However, these practices are not authorized. These practices have huge opportunities to investigate the health tourism and bring lucrative foreign interest in this area. The clinical assessment of the authenticity and usefullness of restorative plants is a genuine concern. Therefore, these days analysis has been targeted onscientific analysis of ancient medicine of plant origin. In this context, we have observed an underestimated plant *Amaranthus spinosus* Linn; which is one such plant that has remainedoften employed in ancient system of medication **[3-5]**.

BOTANICAL DESCRIPTION

*Amaranthus spinosus*is (Family: Amaranthaceae) is typically recognized as ‘‘Kate Wali Chaulai (Kanatabhajii)” in Hindi, used as vegetable and cultivated at some stage in Asian country. It is an Annual herb with multi-branched, smooth, herbaceous annual developing to two ft.

Stems and leaves are easy and hairless, on occasion brilliant in appearance. Stems angled or with longitudinal strains or ridges, inexperienced or brown, leaves alternate, generally lance late to ovate, discolors, conspicuously veined beneath, up to 7 cm long, four cm wide. Leaves are glabrous or with sparse hairs on the principal veins, below lengthy petiolate, up to 9 cm. The leaf axils undergo pairs of fantastic and slim spines. Flowers are found in axillary clusters and are branched as terminal spikes **[6, 7]**.

Figure 1: Image of *A. spinosus*

Male vegetation is present in the apical section of the spikes. Leaf blades are egg-shaped to diamond-shaped, with the broader cease closest to the stem, and 1–4 inches lengthy by way of 0.5–2.5 inches wide.The petiole is about as lengthy as the blade. Leaves may also be variegated with a v-shaped watermark or region of lighter color **(Figure 1)**. The seeds of spiny amaranth are very small. Seeds mature about one month after flowering.They are scattered around the mother plants or distributed by animals feeding on the plants **[8, 9]**.

THERAPEUTIC CONSTITUENTS

The reported phyto-constituents of different extracts are obtained from aerial parts of *Amaranthus spinosus* as follows. Proteins, glycosides, flavonoid and phenol are mostly found in hexane extract. The presence of tannin, glycoside, flavonoid and phenol are observed in chloroform based extract **[10]**. Ethanolic solvent shows the presence of saponin,protein, flavonoid, phenol, cardiac glycoside. Aqueous extract confirms the presence of carbohydrate, protein, flavonoid and phenol.Phytochemically, the root is found to contain alkaloids, glycosides, terpenes, and sugars specialy when ethanol, petroleum ether and chloroform are employed as a solvent medium for extraction **[11]**. A list of significant constituents are listed as under the **Table 1**.

Recently, Ethanolic extract of the whole plant is reported to possess three new constituents, diglycoside flavonoid hesperidin **(Figure 2)**, two sterols comprising spinasterol and spinasterol3-O-β-Dgluco-pyranoside **(Figure 3) [15]**.

HEALTH BENEFITS

Reported Therapeutics

The reported pharmacological activities of *A. spinosus* has been discussed in the following **Table 2**.

Table 1: List of *A. spinosus* chemical constituents [12-14].

Herbo-chemicals	Plant part
Amaranthoside, Amaricin, Stigmasterol glycoside, 7-p-coumaroyl apigenin 4-O-β-D-glucopyranoside, α- xylofuranosyl uracil, β-D-ribofuranosyl adenine and β-sitosterol glucoside, Rutin and Quercetin	Whole Plant
Hectriacontaneoleanolic acid, D-glucose and D-glucuronic acid	Leaves
Aliphatic ester-α-spinasterol, Octacosanoate, Saponin-β-D- glucopyranosyl-(1-4)-β-D-glucopyranosyl –(1-4)-β- D-glucuronopyranosyl-(1-3)-oleonolic acid and α-spinasterol	Root
Amaranthine, Isoamaranthine, Hydroxycinnamates, Quercetin and Kaempferol glycosides	Stem

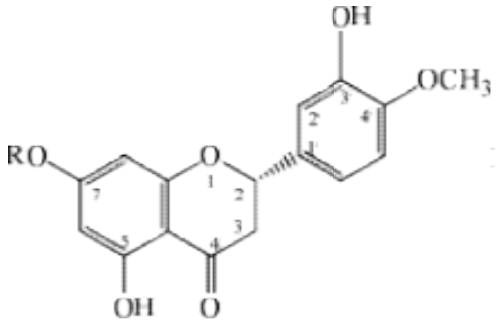

Figure 2: Hesperidin

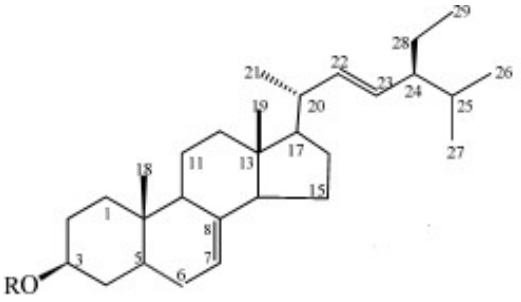

Figure 3: R = H (Spinasterol); R= β- D- glycopyranosyl (spinasterol3-O-β-Dglucopyranoside)

Table 2: List of prominent reported therapeutics activities of *A. spinosus*.

Reported Activity	Chemical Constituents	Refrence
Anti-anthelmintic Activity	Steroids,saponin,alkaloids,phenolic compounds.	[16]
Anti-depressant Activity	Rutin	[17]
Anti-diabetic Activity	Flavonoids, essential amino acids (high in lysine, threonine and tryptophan), vitamins, calcium and minerals.	[18]
Anti-fertility Activity	Saponin, protein, flavonoid and phenol	[19]
Anti-malarial Activity	Betanin and amaranthine	[20]
Anti-oxidant activity	β-cyanin, β-xanthin, betalain, and a source of other pigments, such as carotenoids, anthocyanin	[21]
Anti-pyretic Activity	Alkaloids, steroids, glycosides, flavonoids, phenoliccompounds and terpenoids	[22]
Anti- cancer Activity	Tetraenoic fatty acid, polyphenols, flavonoidphytoestrogen such as enterolactone and enterodiol	[23]
Anti- peptic ulcer Activity	Alkaloids, flavonoids, glycosides, phenolic acids, steroids, amino acids, terpenoids, lipids, saponins, anthriquinone derivatives, volatile oils, organic acids, betalains, β-sitosterol, stigmasterol, linoleic acid, rutin, catechuic tannins, polyuronides, and carotenoids	[24]
Diuretic Activity	Saponins, flavonoids, steroid, terpenoids and glycosides.	[25]
Hepatoprotective Activity	Amaranthine, isoamaranthine, hydroxycinnamates, quercetin, kaempferol glycosides, amaranthoside, amaricin and stigmasterol	[26]
Anti- Diarrhoeal Activity	Phenol, tannins, and flavonoids	[24]
Wound healing Activity	Carbohydrates, glycosides, tannins, gums, flavonoid, alkaloids	[27]

OBSERVATIONAL STUDY

The study was carried-out to fetch information about the traditional use of *A. spinosus* in the social group made villages of Sarguja district in Chhattisgarh state. The ethnomedicinal data were obtained from folk healers and native inhabitants of the village. Ethnomedicinal studies were conducted within 5 villages (Mainpat, Harratikra, Dandgaon, Lahpatra and Latori) of the district. The tender leaves are eaten as a vegetable by the population. The juice of *A. spinosus* is used by tribals to prevent swelling around the stomach while the leaves are boiled without salt and consumed for 2-3 days to cure jaundice and root is taken for

intestinal disease. Root juice is taken with cold water in the morning to treat painful urination and is also taken with warm water before going to bed to break and dissolve gravel and to pass it out along with urine. People are still utilizing this plant to remove stones from their kidneys. Root paste is applied on boils to remove the pus. Roots with warm water are taken orally to check excessive bleeding at the post-delivery stage. Since *A.spinosus* is widely distributed throughout Chhattisgarh even other adjacent countries around India. Therefore the ethnic application of the plant varies from place to place. However, few traditional uses are found common in different regions.

CONCLUSION

Since the past, medicative plants have wide acceptance to an oversized number of benefits like lesser cyanogenic effects, safe, effective, cheap, fewer probabilities of repetition of illness, simply obtainable in rural areas. The current review containing information about the reported and folk use of *A.spinosus*. It will surely facilitate in guiding the scientist to spot new supply of medication for prevailing human disorders to beat the assorted diadvantages visaged by the synthetic medicines. The tribals of Sarguja district have developed information of plants as determined by us through field survey. Local healers are quite reluctant to share their information with any outsider. So, we need to build a strong bond with the residents to establish a chain of information flow; which will help in documentation and further clinical validation of such irreplaceable information.

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