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REVIEW ON *Amaranthus spinosus* (FAMILY: AMARANTHACEAE) AND *Aristolochia indica* (FAMILY: ARISTOLOCHIACEAE) WITH SPECIAL FOCUS ON GWALIOR DISTRICT, M.P., INDIA

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Abstract:

Amaranthus spinosus (Family Amaranthaceae) and *Aristolochia indica* (Family: Aristolochiaceae), both are very common Indian plant which also cultivated at Gwalior District, M.P. Exhaustive studies showed that *Amaranthus spinosus* have antidiabetic, antitumor, analgesic, antimicrobial, anti-inflammatory, spasmolytic, bronchodilator, hepato-protective, spermatogenic, antifertility, antimalarial, antioxidant properties etc. and *Aristolochia indica* have used to treat breast pain and suppuration, abortifacient, inflammation, joint pains, stimulant, emetic, emmenagogue, digestion, regulate menstruation (in small doses), wounds, diarrhea (paste), cholera etc. Based on their medicinal and ethnobotanical value, here review of both plants has been chronicled.

Keywords: *Amaranthus spinosus, Aristolochia indica,* Amaranthaceae, Aristolochiaceae, Gwalior

INTRODUCTION:

In ethnobotany, the dynamic interaction between plants and people is investigated. Colonial times can be used to date the search for exotic spices like cinnamon, cloves, nutmeg, and more. As ignorant colonial traders and settlers unintentionally disseminated tropical germs over the world, the search for natural treatments for a variety of brand-new and emerging diseases grew more intense. In search of "green gold," businesspeople and researchers combed these uncharted regions, giving rise to the ethnobotanical sector [1]. Ethnobotanists keep looking for novel botanical products, particularly therapeutic plants. Despite this success, these bioprospecting operations have resulted in the loss of indigenous intellectual property. In the 1960s, when researchers started to turn their attention away from lists of useful plants, ethnobotanical research became more philosophical and problem-oriented. As ethnobotany study became more widely available to scholars from other fields, it became more interdisciplinary. Data analysis grew more quantitative when techniques from other fields' labs and fields were employed. From the late Pleistocene to the present, the research's time frame is covered [2].

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Ethnobotany was created in order to learn more about the interactions between local flora and indigenous populations in remote, frequently isolated areas. The better, the more natural and sedentary. Although it is obvious that immigrants go to great pains to continue using their traditional cuisines and medicinal plants, many people believe that migrants lose their ethnobotanical knowledge after moving. This is especially true in the case of persecuted diaspora cultures when the plants serve as cultural markers. For instance, enslaved Africans felt a strong impulse to imitate their ancestral vegetation in the Americas. The Columbian Exchange delivered significant portions of their beneficial flora to the New World despite the immense difficulties. This botanical constancy made it easier for African plant-based culinary and therapeutic practises to endure among the New World descendants of their African predecessors. Transferring useful plants is quite challenging for international migrants. Many people smuggle plants or seeds into the United States in order to get past customs. Native species have a tendency to appear before intruders do if they are weedy and widely scattered. If their other attempts fail, newcomers learn the names of supermarkets and pharmacies [3, 4] instead of trying to learn the names of nearby species that can stand in for them.

The selected plant namely *Amaranthus spinosus* (Family: Amaranthaceae) and *Aristolochia indica* (Family: Aristolochiaceae) has been found Gwalior, M.P., India which is the famous for medicinal plant cultivation.

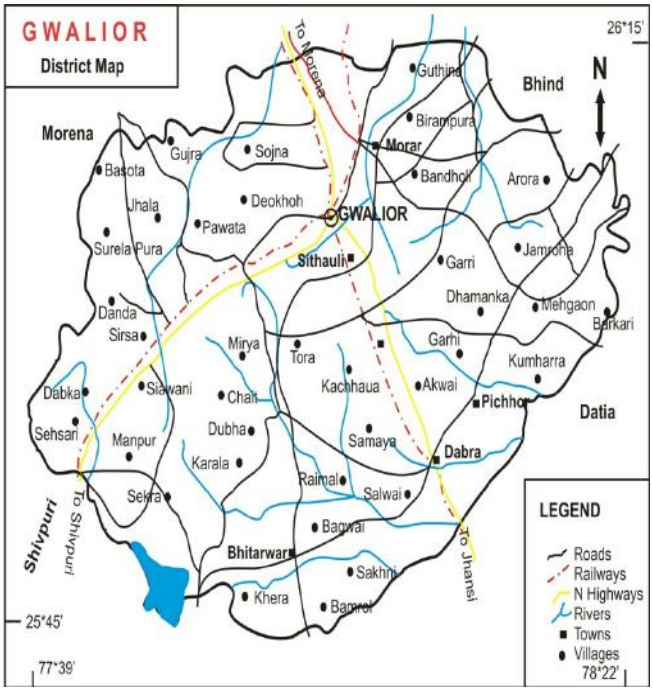

Figure 1: Gwalior District, M.P.

REVIEW OF LITERATURE:

The nutritional and therapeutic value of the plant Amaranthus spinosus was reported by Anjali Ganjare and Nishikant Raut (2019). Amaranthus species are a very well-liked family of vegetables, and the leaves, shoots, fragile stems, and grains are consumed as possible herbs in

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sauces or soups, cooked with other vegetables, as a main course, or by themselves. Animals raised on farms are fed the plants. Boiling the leaves and roots makes them useful as a laxative, diuretic, anti-diabetic, antipyretic, antileprotic, anti-gonorrheal, expectorant, and to help those with acute bronchitis breathe easier. Additionally, it contains anthelmintic, anti-androgenic, immunomodulatory, and anti-inflammatory effects. The main phytoconstituents are 7-p-coumaryl apigenin, 4-O-beta-Dglucopyranoside, spinosidexylofuranosyl uracil, beta-D-ribofuranosyl uracil, beta-Dribofuranosyladenine, beta-sitosterol glucoside, hydroxycinnamates, quercetin and kaempferol glycosides. In addition to these significant phytoconstituents, it also contains minerals like iron, calcium, manganese, copper, and zinc that indicate its nutritious potential. It also contains carbohydrates, proteins, lipids, and fibre. The plant should be used as a food supplement due to its high nutritional content and medicinal potential. [5]

According to P.N.K. Tuyen et al. (2019), seven compounds were isolated from the entire plant of Amaranthus spinosus L., Amaranthaceae, which was collected in the Bu Dang district, Binh Phuoc province, Vietnam. These compounds included two diglycoside flavonoids, hesperidin (1) and rutin (2), one phenolic acid (E)-ferulic acid (3), two amino acids, tyros By using spectroscopic techniques including ESI-MS, 1D, and 2D-NMR, their chemical structures were clarified, and the results were compared to existing data. It was recognized that this plant was the first place where all of these chemicals had been discovered. For three of these, compounds 1, 6, and 7, were isolated for the first time from the Amaranthus genus. [6]

According to Chandrashekhar, K. (2019), a weed is an undesired plant growing on arable ground. Unexpectedly, there are occasions when a particular weed proves to be an excellent source of food or medicine. Nature has been incredibly kind to humanity, giving them many helpful items. Ayurveda's great sages have never failed a plant. They always made an effort to recognize a plant's value in some way. However, occasionally certain plants' therapeutic properties are not included in Ayurvedic literature for unknown reasons. If collected and examined, ethnobotanical usage of such plants could greatly improve the health care system, in addition to Ayurveda. This review focuses on a plant known as tanduliyaka (Amaranthus spinosus Linn), which is underutilized, little understood, probably not sufficiently valued, and categorically unspoken, but is used by numerous Indian ethnic groups and in folklore. In addition to some notable ethnobotanical applications and its verified activities, this study reveals 45 synonyms for the plant, demonstrating its high interest as a plant. [7]

Amaranthus spinosus leaves have a long history of usage in Ayurvedic medicine, according to V.C. Pal et al. (2013). Its leaves are used to cure a variety of conditions, including bronchitis, eczema, leprosy, leukorrhea, fever, and hepatic problems. We identified the microscopical structures and powder characteristics of the leaves of the disease's leprosy, eczema, bronchitis, hepatic problems, fever, inflammation, and leprosy because of their therapeutic value and taxonomic confusion. Fluorescence analysis and physical-chemical constants of the powdered leaves, including total ash, acid-insoluble ash, water-soluble ash, ether-soluble extractive, water-soluble extractive, alcohol-soluble extractive, and foaming index. Using solvents with varied polarities, a preliminary phytochemical investigation was conducted on the various crude

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extracts. In the current situation of a lack of regulatory laws to govern the quality of herbal pharmaceuticals, this research offers referential information with respect to its identification criteria, which is significant in the manner of acceptability of herbal drugs. [8]

Aristolochia indica L., of the Aristolochiaceae family, is referred to as Ishwar balli (Kannada), Indian birthwort (English), Isharmul (Hindi), and Ishwari, according to Pattar, P.V., and Jayaraj, M.E. (2012) (Sanskrit). The leaves and roots are used in Ayurveda to cure fever and bug bites. A. indica has also been used for many medical conditions. The plant is also used as an emmenagogue, abortifacient, antineoplastic, antiseptic, anti-inflammatory, antibacterial, antioxidant, and phospholipase A2 inhibitor. It is used to cure cholera, fever, digestive problems, ulcers, leprosy, and dangerous bites. Due to massive collection and ongoing deforestation, Aristolochia indica L.'s vital therapeutic characteristics are in danger. This ancient medicinal herb must be preserved for the benefit of future generations and to be available all year long for use. [9]

Aristolochia indica L. (Aristolochiaceae) has a long history of use in the Indian subcontinent's traditional medical system to cure cholera, fever, digestive difficulties, ulcers, leprosy, skin illnesses, menstruation problems, and snakebites, according to A. Dey (2011). As an emmenagogue, abortifacient, antineoplastic, antiseptic, anti-inflammatory, antibacterial, antipyretic, antifertility, and antispermatogenic substance, the plant is also employed. One of the plant's main active components, aristolochic acid, has been linked to sister chromatid exchange, cancer, nephritis, and powerful abortifacient properties. The current review focuses on the various scientific research and reports that are now available in the fields of morpho-taxonomy, phytochemistry, pharmacology, medico-ethnobotany, tissue culture, and chromosomal investigation on various aspects of this plant. [10]

According to H. Sati et al. (2011), Aristilochia indica is credited with a plethora of therapeutic properties. Different traditional medical systems have acknowledged the medicinal benefits of A. indica for treating a variety of human illnesses. Aristolochic acid, ceryl alcohol, beta-sitosterol, stigmast-4-en-3-one, friedelin, cycloeucalenol, and rutin are among the phytoconstituents that have been identified from various plant components. In addition to being used as an abortifacient, it has been advised for the treatment of dry cough, joint discomfort, inflammation, biliousness, children's dysphenia, snake bite, and dry cough. Most notably, the research revealed that the plant has strong antibacterial properties. This likely explains why the native people used this herb to treat various illnesses. It has drastically reduced the ability of experimental animals to fertilize. [11]

CONCLUSION:

Throughout history, people have employed a variety of natural remedies to treat and enhance their health. Resources for plants, animals, and minerals come from both nearby and remote areas. Thousands of years of traditional use preceded the discovery of many contemporary pharmaceuticals, which gave rise to many of the medications we use today. Even though medicinal plants are at the core of these systems, they nonetheless play a crucial part in the

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healthcare of around 80% of the people on Earth. The current drug screening method makes extensive use of knowledge acquired from medical folklore. By following leads from folk applications, modern medications like digitoxin, reserpine, and tubocurarine were discovered.

According to Farnsworth and colleagues, 119 different chemicals originating from 90 different plants were used as single-entity medications all over the world. Seventy-seven percent of these were found by looking at plants and are used in ways that are similar to traditional medicine.

We've been emphasizing for a while how little is known about the relative significance of medicinal (or other useful) plants in a culture and how important it is to compare plant use across cultures. The identification of species that require urgent phytochemical study and that we believe are most likely to contain beneficial chemicals is made possible thanks to ethnobotanical research. Native Americans employ medicinal herbs to keep themselves healthy. The traditional use of plants offers tremendous potential for the development of novel medications. Plants can also be used as food to highlight the distinction between the two groups. [12-14]. Foods can contain medications, and the opposite is also true.

It is a serious issue because indigenous and smaller groups are losing their traditional languages and knowledge as a result of acculturation and the destruction of plant habitats. These people, their traditions, and the settings in which they live, which supply modern plant items for human well-being to both traditional and western medicine, are all in severe danger. Modern medicine has deteriorated because traditional knowledge is no longer available. Indigenous cultures in developing nations risk being permanently lost if modern development forces fracture and harm them. Ethnomedicine practitioners tend to be more vulnerable to extinction than forests and other biomes, similar to the current wave of plant and animal extinction. The loss of plant knowledge is outpacing the decline of plant species.

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