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# *Celosia Argentea* var. cristata: A Concise Review

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## Abstract:

Weeds produces diverse phytochemicals as defense mechanism as they are easy accessible. Many species of weeds remain understudied offering opportunities for new drug discoveries. Some weeds are already used in traditional medicine. Potential herbs have been the main focus of the chemical industry because, new bioactive molecules are critically needed. Phytochemicals from weeds can act as new agricultural or pharmaceutical products. The phytochemicals like flavonoids, alkaloids, amino acids, glycosides, saponins, steroids, tannins and many others present in the plants are the great reservoirs of many new and potential drugs. Phytochemical analysis is now acted as the essential part towards the discovery of useful and novel drugs. The progress of human beings has been associated with the use of plant resources for their livelihood. A present study includes the concise review of a common weed of agriculture i.e. *Celosia argentea* which can be further investigate for its chemicals.

***Keywords:*** *Celosia argentea,* Review, Secondary metabolites, Drugs.

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## INTRODUCTION:

Plants are the source of many medicines and have many medicinal properties for different groups. These chemicals are called phytochemicals. The medicinal plant is an important element of endemic medical systems all over the world. The ethnobotany provides a wealthy means for natural drug research and development. According to the World Health Organization [1], traditional medicine using plant extracts in developing countries continues to provide health care to more than 80% of the world's population. *Celosia argentea* L family Amaranthaceae is an annual tropical herb [2].which grows upto 1m tall, widely distributed in tropical countries. Its leaves are used internally for hematological and gynecologic dis orders and externally to treat infection, as disinfectant [3].

Compounds isolated from the leaves of *Celosia argentea* have tyrosine inhibitory effect and super oxide scavenging activity [4]. The whole plant is used to treat dysentery and dysuria. The petioles are used to treat sores, wounds, boils and swellings [5]. The seeds are used for the treatment of conjunctivitis. The major constituents of primary metabolites consists of carbohydrates, amino acid, protein and chorophyll while secondary metabolites of alkaloids, saponins, steroids, flavonoids, tanins and so on [6].

Amaranthaceae family is analyzed by its diverse chemistry, including betalains, flavonoids, phenolic acids, essential oils, sesquiterpenes, diterpenes, and triterpenes. Triterpene, saponins are found to be present generously in Amaranthaceae family [7]. The family Amaranthaceae constitutes nearly 165 genera and 2,040 species and is treated

  

to be the most species rich lineage among the flowering plant order of Caryophyllales [8]. It is a non-woody plant. It is widely seen in Africa, South America, India, and some parts of Asia [9]. The plant reaches a height of 2 to 5 feet. Leaves are arranged in an alternate, simple, and agitate or arrow-shaped. Margin and pinnate venation is seen in the leaf. They grow up to 2-4 inches in length and are greenish-purple or red. The flowers are mostly red. *Celosia cristata* was found to be having the capability of producing purplish or reddish pigment in the tissue culture system. Cyanidin, a kind of anthocyanin was found to be present [10].

**CHEMICAL CONSTITUENT:**

The plant contained choline esters of hyaluronic acid, betanin, and several sterols. The inflorescence contained amarantin, isoamarantin, celosianin, and isocelosianin. The seeds contain 10.1-12.8 % of protein and yield 7.2-7.9 % fatty oil. Six compounds were isolated from the ethanolic extract of *C. Cristata*, and identified as 4-hydroxyphenyl alcohol, kaempferol, quercetin, β-sitosterol, 2-hydroxy octadecanoic acid, and stigmasterol [11]. Isoflavone, cristatein (5-hydroxy-6-hy-droxymethyl-7, 20-dimethoxyisoflavone, 2), and five known flavonoids were also identified. Five saponins, cristatain , celosin A, celosin B, celosin C, and celosin D were obtained from the seeds of *Celosia cristata*. Triterpenoid saponin and semenoside A are isolated from semen of *Celosia cristata*. Two glycoproteins, CCP-25, and CCP-27, were purified from the leaves of *Celosia cristata*. The compounds isolated from *C. Cristata* were p-hydroxyphenyl ethanol, kaempferol, quercetin, cristatain, celosin A, celosin B, celosin, celosin, sphingosine, β-sitosterol, stearic acid, stigmasterol, daucosterol, palmitic acid, and nhexacosanoic acid ([12]. [13], [14], [15], [16]). *Celosia cristata* contains an essential phytochemical compound namely flavonoids. Total flavonoid contents were determined using the aluminum colorimetric method with slight modification [17]. It also contain Eugenol, dopamine, methylate, celogentin A, B, C, D, H, J, K. moroidin, cristatain ,dopamine, lyciumin A ([18], [19], [20]).

**PHARMACOLOGICAL ACTIIVITY:**

The plant Celosia argentea is known as the wound healing medicinal plant along with the Carica papaya, Cinnamomum zeylanicum, Azadirachta indica, Aloevera, Curcuma longa, and others [21]. Celosia used to treat fungal infection caused by Trichophyton mentagrophytes, Candida tropicalis. It is studies by using the n-hexane extract of Celosia seed by scientist Diéméléou et al. Hence it is used in cosmetic &various preparations [22]. It has efficiency to treat the castor oil & charcoal meal induced diarrhoea. The study is done by model of castor oil induced diarrhea and charcoal meal induced diarrhea [23]. It reduces increased level of triglycerides, urea, and cholesterol and also decreases the protein and liver glycogen level in body. In the streptozotocin-induced diabetic animal it inhibits the body weight reduction [24].

It was used to treat opticatrophy, epipephysitis, and iridocyclitis. It works by increasing the anti-oxidant ability of lens. It decreases the oxidative damage of lens [25]. The responsible compounds for Anti-inflammatory activity are celosin E, F, G, and cristatain. The activities are studied by using the in vitro methods [26]. The evaluation of antiurolithiatic activity of seed extract of Celosia argentea is done by [27].

The leaf extract shows the antibacterial activity on pathogens like Shigella sp., Staphylococcus sp., Vibrio sp., Streptococcus sp., Salmonella sp. etc [28]. The IgE antibody production will mainly suppressed by the extract of Celosia argentea and Cucurbit amoschata. It could not affect the response of IgG antibody. In vitro model it shows mitogenic effect [29]. The plant seed extract contain Celosian, an acidic polysaccharide and they inhibit the increase in the serum enzyme (GOT, GPT, bilirubin) [30]. The

  

triterpenoidsaponins were isolated from the seeds of C. argentea and named as celosin, celosin F, G, and cristatain. These active constituents are screened for their anti-cancer activity by in vitro methods [31].

**TRADITIONAL USES:**

**Edible uses:**

An edible oil can be obtained from seed. Plant used as a vegetable in soups and stew. Leaves soften readily and should not be overcooked, the texture is soft and the flavour very mild and spinach-like with no hint of bitterness [32].

**Medicinal use**:

The flowers and seed are astringent, haemostatic, ophthalmic, parasiticide and poultice. They are used in the treatment of bloody stool, haemorrhoid bleeding, uterine bleeding, leucorrhoea, dysentery and diarrhea. As a parasiticide it is very effective against Trichomonas, a 20% extract can cause the Trichomonas to disappear in 15 minutes. The seed is hypotensive and ophthalmic. It also has an antibacterial action, inhibiting the growth of Pseudomonas. It is used in the treatment of diarrhoea, bloodshot eyes, blurring of vision, cataracts and hypertension, but should not be used by people with glaucoma because it dilates the pupils [33]. The seeds are widely used in India for the treatment of diabetes mellitus. A liquid extract from the leaves and flowers is used as a body wash for convalescents. The leaves are used in the treatment of infected sores, wounds and skin eruptions. The whole plant is used as an antidote for snakebites. The roots are used in the treatment of colic, gonorrhoea and eczema (Protabase) [34].

**Folk use:**

Folk practices use the leaves, seeds, and roots to treat conditions such as diarrhoea, dysentery, mouth sores, skin infections, jaundice, and hypertension [35].

**CONCLUSION:**

Since the phytochemicals cure diseases without causing any harm to human beings these can also be depicted as ecofriendly and human friendly medicines. Their exploration in herbal medicine offers a promising avenue for discovering novel therapeutic agents. Their diverse compound and adaptability can prove them a valuable resource for developing new treatments. In Chinese book already the remedies of the Celosia plant from years is included. Therefor further research in India is needed to assess safety and efficacy, their phytochemicals for large scale production.

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