

Study of A customary medication of *Celosia argentea* L:

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ABSTRACT:

Today's medicinal plants are the main source of pharmaceuticals, serving as a significant component of the pharmaceutical industry's drug development program and offering human cures. China has long practiced *Celosia argentea* L., an Amaranthaceae plant, as a traditional medicine. This particular source of *Semen Celosiae* is beneficial for curing many eye illnesses, clearing the hepatic pathogenic fire, and enhancing vision. A total of 79 chemicals were extracted and identified from this plant, mostly in the form of fatty acids, amino acids, phenols, peptides, and saponins, which are thought to be the distinctive and active components of *Celosia argentea*. physiologic effects like hepatoprotection, tumor treatment, anti-diarrhea, anti-diabetes, anti-oxidant, anti-hypertensive, and for the management of several ocular conditions.

Keywords- *Celosia argentea* L, Amaranthaceae, Peptides, Phenols, Hepato-protection, Ocular

I. INTRODUCTION:

Over centuries and decades, our ancestors used herbal plant or herbal product in different forms as therapeutic which can be traced back for at least 5000 years. In few decades, development of modern or allopathic medicine has somehow reduced the role of medicinal plants in favour of synthetic drugs^[1]. Even now for the discovery of number of modern drug has been based on secondary metabolites of medicinal plants which is used by indigenous people. According to World Health Organization (WHO) report, about 80% of the world population depends on the natural product of plants, animals, and microorganisms for their health due to minimal side effect and cost effective^[1].

The *Celosia* species is a small genus of edible and ornamental plants belonging to Amaranthaceae. The generic name is derived from the Greek word *kelos*, meaning "burned," and refers to the flame-like flower heads^[2]. Amongst the different plants of the species, *C. argentea* is an important tropical leafy vegetable crop of high nutritional value^[2]. India is the origin, *C. argentea*, is a

plant of tropical origin and known for its very brilliant colors and traditional uses. *C. argentea* commonly named as *Semen celosiae*, *celosia*, silver cock's comb, cock's comb, quail grass, wool flower in English. In India locally named as *sitivara*, *vitunnaka*, *sunishannaka* (Sanskrit), *indivara*, *survali*, *safedmurga* (Hindi), *annesoppu*, and *kannahoo* (Kannada)^[2].

Celosia argentea (Family-Amaranthaceae) grows as a weed during the rainy season throughout India and other tropical regions of the world, such as Srilanka, South Asia, Africa and America^[3]. An alcoholic extract of the seeds possesses aphrodisiac, antipyretic, antispasmodic, anticancer, diuretic and antibacterial.

Also they are reported to be useful in jaundice, inflammation, metrorrhagia, gonorrhoea, healing of wounds and injuries^[3]. In folklore practice, the decoction of *C. argentea* seeds have been reported to be useful in *betus mellitus*.^[3]

The use of herbal medicine for the treatment of diseases and infections is as old as mankind. The curative properties of medicinal plants are due to the presence of various complex chemical substances of different composition which occur as secondary metabolites^[2].

Species:-

1. *Celosia argentea* var. *Cristata* (L.) Kuntze
2. *Celosia cristata* L.



Figno. 1: *Celosia argentea* L plant^[4]

Common Names:

1. Chare Maguri
2. Kukura-joa-phul
3. Mesor
4. kurdu



Figno.2: seeds of celosia argenteaL plant^[5]



Figno.3:-Inflorescence of this plant^[6]

centimetres, tapering at base, acute to obtuse and shortly mucronate at apex, entire, glabrous and pinnately veined. Inflorescence dense, many flowered spike at first conical but becoming cylindrical upto 20 centimetres long, bracteate, silvery to pink in ornamental forms completely or partly sterile and in many colours. Flowers are small, bisexual, regular five merous, tepal free, narrowly elliptical-oblong, 6-10 millimetres long, stamen fused at base, ovary superior, 1-celled, style filiform up to 7 millimetres long, stigma 2-3, very short. Fruit is an ovoid to globose capsule 3-4 millimetres long circumscissile, few seeded with seeds being lenticular, 1- 1.5 millimetres long, black, shining, shallow lyreticulate^[7].

Cultivation:-

Celosia argentea in India mainly grows as a weed wild and is now cultivated in Tirunelveli^[11]. It can be grown in the best areas where the annual day time temperature is within the range 28-30°C but can tolerate 20-40°C. It is a common waste land weed which comes out during February – March when most of the paddy fields are ploughed. The plant genus Celosia of the Amaranthaceae family (genus of annual herbs, edible and ornamental plant) has about 60 species (Caryophyllales) worldwide^[8]. It is cultivated or found native to subtropical and temperature zones of Africa, South America and South East Asia^[8].

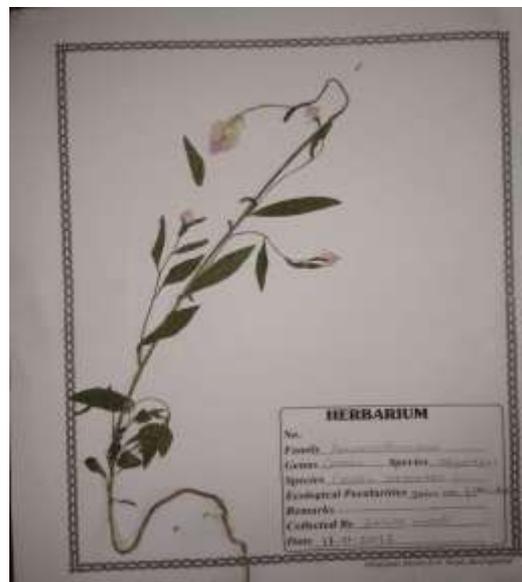
Taxonomy:-

kingdom	plante
Super division	spermato phte
division	manoliophyta
class	magnoliophyta
order	carypphyllales
family	amaranthaceae
genus	celosia
species	argenta

Morphology :-

CELOSIA ARGENTEAL plant

Celosia argenteaL is an erect annual herb up to 2 metres tall. The stem is ridged, glabrous and branches up to 25 per plant. The leaves are alternate, simple, without stipules; petiole indistinctly demarcated; blade ovate to lanceolate-oblong or narrowly linear, up to 15 centimetres x 7



Chemical compounds found in the plant:-

- 1) Starch
- 2) Cellulose
- 3) Flavonoids
- 4) Tannin
- 5) Phenols
- 6) Terpenoids
- 7) Saponin
- 8) Steroids

The plant contains hyaluronic, tetracosanoic, stearic, palmitic, octacosanoic and betulinic acids. Presence of β -sitosterol, tinosporin, n-hentriacontane, petulin, lupeol, cetyl alcohol, ancistrocladine, rapanone, stigmasterol, luteolin, mannitol, hordenine, proteins, vitamins and minerals have also been reported in the plant. Seeds contain a fixed oil. Two rare isoflavones have been isolated from the aerial parts^[2].

Medicinal use:-

The leaves are eaten as vegetable in West Tropical Africa where it is considered an excellent potherb and slightly bitter spinach alternate, rich in protein and vitamins^[7]. The stems and leaves bruised and applied as poultice is used for infected sores, wounds and skin eruptions. Poultice of leaves, smeared in honey, is used as cooling application to inflamed areas and painful affections such as buboes and abscesses. Leaf concussions are used to relieve gastrointestinal disorders and are antipyretic. Seeds when in decoction or finely powdered, are considered antidiarrhoeal or aphrodisiac.^[7]

Whole plant is used for antidote in snake poison while root is used for abdominal colic, gonorrhoea and eczema.^[7]

Pharmacological activity:-

Pharmacological and health benefits of the plant are: anti-oxidant, anti-diarrhoeal, Anti-diabetic, nutritive, bile juice increase and use as blood Tonic, effect on eye diseases^[9].

Increasing attention on *C. argentea*'s pharmacological activities and its mechanism on hepato protection, anti-infection, anti-tumor and its therapeutic effect on eye diseases indicated that *C. argentea* has enormous potential for further study and exploitation^[10].

Anti-oxidant:-

Celosia argentea reported to contain high amount of plant phenolic was evaluated for its ability to scavenge the harmful radicals generated by in-vitro methods. The work was done with three extracts of *C. argentea* namely, aerial part extract, seed extract and root extract. The plant is reported to be rich in phenols; the total phenolic for the seed extract was significant compared for all the three extracts. The study investigated that the ability to scavenge the generated harmful radicals was more for the seed extract followed by the aerial parts extract. However the antioxidant potential for the root extract was found to be negligible. Hence, it could be stated that seed extract of *C. argentea* could help protect the damage due to harmful free radicals by scavenging and suppressing them possibly due to its abundance of polyphenols^[11].

Anti-diarrhoeal:-

The Antidiarrhoeal activity of alcoholic extract of *Celosia argentea* leaves in experimentally induced diarrhoea in rats was studied by Sharma et al., and they observed that the extract produced dose related anti-diarrhoeal effect against castor oil induced diarrhoea, charcoal meal test and PGE₂ induced diarrhoea^[7].

Anti-diabetic:-

The ethanolic extract of *C. argentea* shows that, significant hypoglycaemic action. *Celosia argentea*, Linn. Commonly known as "Cocks Comb" and its seeds are widely used in Indian folk medicine for the treatment of diabetes mellitus. This study was undertaken to evaluate the effect of an alcoholic extract of *Celosia argentea* seeds (ACAS) on blood glucose and body weight in all oxan-induced diabetic rats. ACAS was found to reduce the increase of blood glucose in alloxan-induced diabetic rats (27.8% at 250 mg/kg and 38.8% at 500 mg/kg body weight). Chronic administration of ACAS significantly reduced the blood glucose in alloxan-induced diabetic rats for two weeks. Also the extract prevented a decrease in body weight in alloxan-induced diabetic rats. These results suggest that the ACAS possesses anti-diabetic activity in alloxan-induced diabetic rats^[2].

Anti-cancer activity:

The triterpenoid saponins were isolated from the seeds of *C. argentea* and named as cellosin E, cellosin F, cellosin G, and cristatain. These active constituents are screened for their anti-cancer activity by in vitro methods^[11].

Anti-inflammatory activities:-

Anti-inflammatory activity of anisolated flavonoid fraction from *Celosia argentea* Linn leaves was studied by Bhujbal et al. The results of the study revealed this flavonoid possesses significant anti-inflammatory properties when investigated by employing carrageen an induced rat paw edema and cotton pellet induced chronic inflammatory models. The study showed significant dose dependent anti-inflammatory activities in both models. The result supported the traditional use of this plant in some painful inflammatory conditions^[12].

Anti-dote on snakebite:-

Seeds crushed and pasties applied on place snake bite and scorpion sting^[13].

Pawra Tribe of Satpur a Hills, Maharashtra, India was used *Celosia argentea* for the treatment of white discharge. Whole plant dry powder (local name – Rukada) approximately 20 g is given with cup of milk during night for 7days^[1]. The leaves are used as a vegetable in Philippines, Moluccas and West Tropical Africa because of good source of protein, carbohydrate, and minerals^[1].

II. CONCLUSION:

For a very long time, India and China have utilized *C. argentea* extensively in traditional medicine (usually in the form of seeds, or *Semen Celosiae*). It has a reputation for treating illnesses and problems pertaining to the eyes. It causes hepatic asthenia, hyperpyrexia of the liver, heat in the blood, and is used to treat a variety of conditions, including fever, diarrhea, piles, bleeding nose, mouth sores, itching, wounds, jaundice, and gonorrhoea. It also possesses a variety of pharmacological activities, including cytoprotective, inflammation, antioxidant, immunological, hepatoprotective, antimetastatic, antibacterial, antifungal, anti-diarterior activity, gynecological disorders, anti-urolithiatic, anti-diabetes, immunomodulatory, growth activity, anti-infection, antioxidant agent, and disinfectant, among other plant samples.

Till further study is urgently needed to gain a better understanding and formulation of *C. argentea* to provide better service for clinical use. *C. argentea* contains different secondary metabolites in which saponins, cyclic peptides, phenols, and minerals are the main pharmacological active agents and triterpene noid saponins, Cycpeptide and betalains are the

promising targets for further studies due to their bioactivities. Some of the researcher studies the pharmacological effects and the mechanisms of bioactive molecules for the treatment on particular disease have been performed, but complete understanding remains elusive. But till the pathways of their distribution, absorption, metabolism, and excretion by the human and animals are almost nonexistent and need to be urgently studied and clarified by pharmacokinetic studies. So far the studies are significant but limited to the level of active fractions or crude extracts and separation of bioactive molecules. Therefore, proper and systematic study of more promising bioactive chemical class of compounds or individual compounds should be done by using bioactivity-guided isolation strategies or by using different modeling strategies.

It is also necessary to integrate pharmacological, pharmacokinetic, bioavailability-centered, and physiological techniques in order to assess the probable mechanism of action and synergistic or antagonistic effects of mixtures of bioactive chemicals obtained from *C. argentea*. This plant is one of the few that has not yet been found to have any significant adverse effects or noticeable toxicity; nonetheless, additional relative systematic toxicity, storage capacity, and safety assessment investigations are still required to guarantee safety for biological applications as herbal and allopathic medication.

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