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REVIEW ON *HEMIGRAPHIS COLORATA* AND ITS PROPERTIES

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Abstract— *Hemigraphis colorata* is a medicinal plant originates from the tropical regions of Kerala and its native is from the sides of Malesia. It is a perennial herb mostly grown as ornamental plant. It is a tribal plant of the tribes of Kerala. It is commonly called as “murikooti or muryanpacha”. *H. colorata* is used as herbal ointments to cure cut wounds, ulcers and most importantly bleedings. It has many valuable properties like anti-microbial and anti-diabetic activities. It acts as an anti oxidant and exhibit free radical scavenging activity. This review paper is intended to sum up and gather all the important information about the pharmacological effects and the activities of *H. colorata*.

Keywords— *Hemigraphis colorata*, natural dye for solar energy conversion, pharmacological properties.

I. INTRODUCTION

India has wide variety of herbal plants which are used as medicines by the peoples to cure diseases these types of medications used by us is known as phytopharmaceuticals or phytotherapeutic agents. In such wide varieties of herbal plants in this paper we are going to know about the properties of *Hemigraphis Colorata*.

Hemigraphis colorata is an herbal plant mostly grown as an ornamental plant. Its origin is from tropical

Table:1

Compounds	Hexane	benzene	Petroleum ether	chloroform	Ethanol	methanol	acetone	aqueous
Alkaloid	-	-	-	+	-	+	-	+
Phenol	-	+	+	+	+	-	+	+
Flavanoids	-	-	+	+	+	-	-	+
Saponins	-	+	+	+	+	-	-	-
Steroids	+	+	+	+	+	+	+	+
Tannins	-	+	+	-	+	+	+	-
Carbohydrate	+	+	-	+	+	+	+	+

regions of Malay Archipelago [1] and its native is from the South East Asia and also the cascades over Northern Queensland [2]. The characterizations of *Hemigraphis colorata* are as follows; It is a perennial herbal plant from about 15 to 30 cm. It is a prostate herb which has toothed leaves and purple citations in leaves. The colour of the leaves are greyish green and has small white flowers. The flowers are white in colour and has five lobes. It is bell shaped.

The phytopharmaceutical properties of *Hemigraphis colorata* are: It is most commonly used to treat bleeding wounds, cuts and inflammation and internally used to cure ulcers, haemorrhoids, diuretics, gall stones, anemia and diabetes mellitus [3].

PLANT PROFILES

Scientific classification.

Kingdom : Plantae
Order : Lamiales
Family : Acanthaceae
Genus : Hemigraphis
Species : Colorata

II. PHYTOCHEMICAL ANALYSIS

The Phytochemical characteristics of *Hemigraphis colorata* was studied under many activities like alkaloids, phenols, flavanoids, saponins, steroids, tannins and carbohydrates. The results revealed that there is a presence of active compounds and phytoconstituents. The extract of the plant exhibits medicinal and physiological properties. The



results which are given in table 1. [4,5,6,7,8]

+ indicates presence, - indicates absence

These above result shows there are secondary metabolites present with curative property.

III. COMMON USES

Hemigraphis colorata is a medicinal plant which is very commonly used by the people to cure cuts, bleeding wounds and internally ulcers, hemorrhoids, anemia, dysentery and diabetes mellitus[3]. The plants are grounded into fine paste and applied on the wounds.

IV. PHARMACOLOGICAL STUDIES

Wound healing activity:

Hemigraphis colorata is considered to be a medicinal plant which heals bleeding wounds and cuts. The juices of the leaves are applied to cut wounds which cures the wounds[9]. The studies have been made on wound healing studies with help of formulating hydrogel by using polymer carbopol 934[10]. These activity was studied in mice by topical application by invitro studies[1]. Silver nano particle has been synthesized from *H.colorata* and developed into GCG scaffold. The physical cross linking scaffold showed MTT cell proliferation and invitro wound healing assay proved that scaffolds are non cytotoxic, promote cell adhesion and have potent wounds healing activity[12].

Anti inflammatory activity:

The oral administration of leaf suspension and topical application were devoid of anti inflammatory in mice [10]. Also the methanolic extract of *H.colorata* showed anti inflammatory activity in rats [13]. Ethyl acetate extract of *H.colorata* showed anti inflammatory activity and inhibits 5-LOX. COX-1,2 enzymes which are responsible inflammation in dose dependent manner in human keratinocyte cell line (HaCaT cells)[14]. In the invitro experiment, acetone extract showed 43% and 48% of inhibition of anti inflammatory activity [15].

Anti bacterial and anti microbial activity:

The aqueous extract of *H.colorata* showed Anti bacterial and anti microbial activity against *staphylococcus aureus* and *psuedomonas* species [16]. The cotton fibres were finished with the extracts of *H.colorata* and three other herbal plant showed anti microbial activity against *Eschericia coli* and *staphylococcus aureus* [17].

Anti diabetic activity:

Anti diabetic activity was studied using *H.colorata* in rats. The study showed that n-hexane and ethanol extracts of the whole plant were found to lower the blood glucose levels in rats. The presence of coumarins and steroids in the plant extract is responsible for anti diabetic activity[18].

Miscellaneous activity:

Further *Hemigraphis colorata* is extracted to make natural dyes which is used as a photosensitizer in dye sensitized solar cells along with TiO₂ nano particles. Photovoltaic property of *H.colorata* showed an energy conversion efficiency of about 0.0065%. The higher concentration of anthocyanin is responsible for photovoltaic property.

Chloramphenicol and ciproflaxin are antibiotics were used in anti bacterial assays of methanolic extract of *Hemigraphis* to treat UTI patients [19].

V. CONCLUSION

Hemigraphis colorata is an herbal plant which is used as a medication for curing cut wounds and bleeding. It is a tribal plant of Kerala. It has many properties and contains secondary metabolite and bio active compounds. The properties of *H.colorata* are anti microbial activity, anti diabetic activity, wound healing activity and acts as a natural dye for solar energy conversion. Species of *Hemigraphis* are used as an antibiotic to treat UTI patients. Thus *Hemigraphis colorata* has many useful properties. This plant grows perennially and can be easily grown. The studies on *H.colorata* paves way for new pharmacological studies and Phytochemical studies.

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