In-Vitro Screening For Anti-Inflammatory Activity of Bulbophyllum Kaitense. Rechib. Pseudobulb Extract by HRBC Method. Eastern Peninsular Flora in South India

A. Kalaiarasan, S. Ahmed John

P.G & Research Department of Botany, Jamal Mohamed College (Autonomous), Tituchirappalli – 620 020, Tamil Nadu. India.

Abstract- This work is of used on the evaluation of the anti-inflammatory activity various extracts of Bulbophyllum kaitense. Pseudobulb using experimental models. Four different extracts (Petrolieum ether chloroform, Ethanol and aqueous) were tested. The anti-inflammatory activity of HRBC (Human Red Blood Cell Membrane Stabilization Method) was evaluated for the is vitro anti-inflammatory property because the erythrocute membrane is analogous to the lysosomal membrane and its stabilization implies that the various extracts may as well stabilize lysosomal membrances. Stabilization of lysosomal membrane is important in limiting the inflammatory response by preventing the release of lysosomal constituents of activated neutrophil such as bacterial enzymes and proteases. Which cause further tissue inflammation and damage upon extracellular release. The effects of the administration of reference standard (diclofenac) were evaluated. The plant extract showed significant activities in both of the anti-inflammatory assays as compared to diclofenac drug dependent manner. This investigation suggests that Ethamolic extract has anti-inflammatory potential activity. The result obtained indicate the Bulbophyllum Kaitense Pseudobulb has anti-inflammatory activities that supports the folk medicinal use of the plant. The world first report in the plant.

Index Terms- Bulbophyllum kaitense, psuedobulb, Anti-inflammatory, Diclofenac, extracts

I. INTRODUCTION

The use of herbal extracts and nutritional supplements either as alternative or complimentary medicine to the conventional chemotherapy for treatment of anti-inflammatory diseases is well documented in ayurveda. Which is an alternative medicinal system that has been practiced primarily in the Indian subcontinent for 5000 years (Dahankar et. Al.2000) inflammatory diseases, in cluding different type of rheumatic disease are a major cause of inhibitory of the working force throughout the world. Many drugs produced a dramatic symptomatic improvement is rheumatic diseases but all of them shared the common effect called gastrointestinal irritation. The medicinal substrances packaged is a plant can be safely assimilated by the body since the plants are its natural food. In India many ayurvedic practioners are using various indigenous plants for the treatment of different types of inflammatory conditions. (K.Chandrasekaran 2011).

In the 17th century. The aesthetic appreciation was for tulips followed by the rose, gladiolus. Chrysanthemum and today virtually orchid has become the cynosure all over the world. This unusual aesthetic beauty is quite popular among the professional and amateur orchid lovers in many parts of the world. Contrarily the medicinal value of a vandanous taxon and of some other taxa including the present day eupedia dabilia (D.don) Hochy., plickingeria nodosa (dall) and Malaxis rheedili SW. are discussed in charaka samhita; a classic asient Indian medicinal treatise written by charaka in Sanskrit a few thousand years ago. This forms first record of Indian orchids and their uses in Ayurvedic medicine (Manilal and satishkumar 1986) yet only in the later part of the 20th century, the medicinal value orchid has been recognized. Lawler (1987) published as extensive accuent on ethnobotoby of the family orchidaceae and discussed the role and usage. Of many species is ood, flavowring, confectionary industries, arts and crafts, animals and the veterinary medicines is several contents of the world. The use of several orchid taxa is medical practice was greatly appreciated by good in his work the family flora published in 1945 (Duggal 1971) in the ayurvedic system of medicine a group of eight drugs known as astavarga is exploited is the preparation of a number of rejuvenating formulations and toxics the correct identify of these drugs has long been debated. The investigations have indiave that important constituents (drugs) of astavarga namely sivak (microstylis wallichii), of astavarga (Habenaria accuminata) and ridhi varidhi (H.intermedia) are orchidacious in nature (Handa 1986)

Bulbophyllum kaitesse. Rechib, Pseuhobulb this is an epiphytic family orchidaceae. Endemic to south it is native of India. Occurs is the forest of eastern ghats from kolli hills above 1200m sympodial epiphytes with uninode pseudobulbs on the rhizome. Terminating the pseudobulbs. Inflorescence umbellate scape. Leaves 9-13 cm long flowers. Without mentum. Sepal unequal petals shorter then lateral sepalas. The plants have been used in the indigenous medicine such as ayurveda and local traditional medicinal practices the pseudoblb is used for the treatment of certain anticident, anticancer. Anti-inflammatory, antiseptic, antitumore and antimicrobial activity. The pseudobulb property is curring of different diseases. (A. Kalaiarasan ) S. Ahmed john 2011) Analgesic, anesthetic, antiviral cancer preventive, fungicide, rodenticide emetic, vasodilator, cox-1 & cox-2 inhibitor, hypocholesterolemic, candidicide, diwretic, immunostimulant, chemopreventive, lipoxynenas Se-inhibitor, pesticide, antidermatitic, Antileukemic, Hepatoprotective, hypo holoesters lemic, antilcerogenic,
vasodilator, antispasmodic, antibronchitic, anticoagulant, antiarthritic. The plant is used is few years ago is kolli hills agathiyamunniber. The plants have been used is indigenous medicine. This information was gathered by questioning local traditional healers and knowledgeable village people of kolli hills the aim of the present investigation was to evaluate the effectof Bulbophyllum Kaitense. Pseudobulb extract of anti-inflammatory experimental is human red Blood Cell membranes stabilization.

II. MATERIALS AND METHODS

Collection of plant material.

The healthy plant materials of Bulbophyllum kaitense. Rechits. Pseudobulb were collected from the eastern peninsula flora in south India. Kolli hills. India. Sebtember 2011 identified and authenticated by Ret, Dr.S. Hohn Britto. The direor, the Rabinat Herbarium St, Josheph’s College. Tiruchirappalli, Tamil Nadu. India, with the help of herbarium record. The plant voucher number RHT 827.

Preparation of Extract:

The plant material were cleaned, dried under shade and pulverized by using mixey, 500 g of the powder of plant was successively extracted with petrolieum ether. Chloroform, Ethanol and Aqueous in order of their increasing polarity using soxhlet apparatns.

A) Studies on anti-inflammatory activity:

The anti-inflammatory activity using HRBC (Human Red Blood Cell Membrane stabilization) Method was carried out as described by Muruges. N. (1981) Anti-inflammatory activity was evaluated using the HEBC method was used for the estimation of anti-inflammatory activity in vitro. Blood was collected from healthy volunteers and was mixed with equal volume of sterilized alsevers solution. This blood solution was centrifuged at 3000 rpm and the packed cells are separated. The packed cells were packed washed with isosaline solution and a 10% v/v suspension is made with isosaline. This HRBC suspension was used for the estimation of anti-inflammatory property. The plant pseudobulb various extract. Reference sample mixed with 1 ml of phosphate buffer. 2ml of hyposaline and 0.5ml of HRBC suspension. The reference used for this investigation is diclorofenac sodium, all the esaay mixtures were incubated at 37ºC for 30 minutes and centrifuged at 3000 rpm. The supernantant liquid was decated and the hemoglobin content was estimated by spectrophotometer at 560nm. The percentage hemolysis was produced is the control as 100%

Calculation:

The percentage of HRBC membrane stabilization was aculated using the formula.

\[
\text{Percentage protection} = \frac{100 - \text{Optical density of sample}}{\text{Optical density of control}} \times 100
\]

III. RESULT

HRBC method was selected for the is vitro evaluation of anti-inflammatory property because the erythrocyte membrane is analogous lysosomal membrane and its stabilization implies that the extract may as well stabilize lysosomal membranes. Stabilization of lysosomal membrane is unportant in limiting the inflammatory response by preventing the release of lysosomal constituents of activated neutrophil. Which cause further tissue inflammation and damage upon extra cellular release.

The results of the present investigation suggest that the ethanolic extract of Bulbophyllum kaitense. Pseudobulbs. Exert anti-inflammatory activity possibli. The petrolieum ether. Chloroform, and equeous extract more or less anti-inflammatory activity. Result of anti-inflammaty activity is presented in (table-I)

IV. CONCLUSION

The present investigation it is concluded that extracts of Bulbophyllum kaitense. Pseudopulbs are capable of inhibiting inflammatory reactions as well as pain. The results provided experimental voidance for its traditional use in treating various diseases associated with inflammation and pain.

ACKNOWLEDGMENT

The author is thankful to Dr.S.Ahmed John. Head of The Department of Botany. Jamal Mohamed College (Autonomous), Tiruchirappalli-630 020. For providing valuable information and the laboratory facilities to carry out these research investigations.

REFERENCES


**Authors**

First Author – A. Kalaiarasan. M.sc.,M.ed.,M.phil.,Ph.D., P.G & Research Department of Botany, Jamal Mohamed College (Autonomous), Titucharappalli – 620 020, Tamil Nadu. India, Email: myla_kalai@yahoo.com

Second Author – S. Ahmed John., Head and Associate Professor, P.G & Research Department of Botany, Jamal Mohamed College (Autonomous), Titucharappalli – 620 020, Tamil Nadu. India

**Table 1:** Shows *in-vitro* anti-inflammatory activity of pseudobulb

<table>
<thead>
<tr>
<th>Sample</th>
<th>Percentage protection for Pet ether extract in blood</th>
<th>Percentage protection for Chloroform extract in blood</th>
<th>Percentage protection for aqueous extract in blood</th>
<th>Percentage protection for Ethanolic extract in blood</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>0.5</td>
<td>1.0</td>
<td>1.5</td>
<td>0.5</td>
</tr>
<tr>
<td>Pseudobulb</td>
<td>7.8</td>
<td>10.8</td>
<td>13.4</td>
<td>3.0</td>
</tr>
</tbody>
</table>

**Table 2:** In -vitro anti-inflammatory activity of pseudobulb

![Graph showing anti-inflammatory activity of pseudobulb](image)
Figure 1: In vitro Analysis of Anti Inflammatory Activity by HRBC Method (Control)

Figure 2: In vitro Analysis of Anti Inflammatory Activity by HRBC Method (Aqueous and Ethanolic Extract)
Figure 3: *In vitro* Analysis of Anti Inflammatory Activity by HRBC Method (Chloroform) Pet ether Extract

![Image of three test tubes with red liquid, labeled with 'ANTI-INFLAMMATORY']

Figure 4: *In vitro* Analysis of Anti Inflammatory Activity by HRBC Method (Chloroform) Pet ether Extract

![Image of three test tubes with different colored liquids, labeled with 'ANTI-INFLAMMATORY PSEUDOBULB - PETETHA']