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NOTE

Phytochemical Screening and Analgesic Activity of *Syzygium alternifolium* (Wild)

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Many plant related drugs now has found front seat in treatment of diseases because of their equal efficacy and lesser side effects than the conventional treatment. In the present study, the leaves of *Syzygium alternifolium* is screened phytochemically as well as pharmacologically for the analgesic activity. In this study, phytochemical evaluation of ethyl acetate extract of leaves was found to have more flavonoid content and pharmacological screening has shown significant analgesic activity.

Key Words: *Syzygium alternifolium*, Analgesic activity, Syzalterine and Sideroxylin.

Pain is an unpleasant sensory and emotional experience associated with actual or potential tissue damage. It is a subjective experience, which cannot be objectively defined or quantified satisfactorily.

The problem of uncontrolled pain led early humans to seek remedies from many materials that they could lay their hands on. In recent times focus on plant research has increased on non-steroidal antiinflammatory drugs (NSAIDS), constitute one of the most widely used classes of drugs, herbal drugs are being proved as effective a synthetic drugs with lesser side effects. Herbal medicines are gifts of nature less hazardous when compared to conventional drugs[1].

Syzygium alternifolium belongs to family myrtaceae, vernacular name-mogi is a race fruit tree of great medicinal and economical importance and its distribution is restricted to certain forest areas in southern India.

Ethyl acetate extract of leaves of *syzygium alternifolium* has shown significant antibacterial activity[2]. The aqueous extract of *syzygium alternifolium* has shown maximum hypoglycemic and antihyperglycemic activity[3]. The alcoholic extract of seeds and tender shoot have been traditionally used by villagers and tribal to treat bacillary dysentery.

Morphology:

Genus:	Syzygium
Species:	Alternifolium belongs to
Family:	*Myrtaceae*

Syzygium is available in two species *alternifolium*, *cumini*.

Deciduous trees; wood bark; branchlets pale; glabrous leaves- thick, coriaceous, ovate-eliptic, entire, acute flowers white or cream, axillary cymes, scented, Berries-dark purple, sweet[4].

Dimethyl flavone is isolated from leaves of *syzygium alternifolium* which has been identified as 4,5-dihydroxy-7-methoxy dimethyl flavone. Ethyl acetate extract of leaves yielded C-methylated flavone syzalterine which is found to be 4,5,7-trihydroxy-6,8-dimethyl C-flavone. Syzaterine gave positive test for schinoda, which suggested being a flavone[5].

Preparation of extract: The plant material of 200 g was successively extracted with solvents of increasing polarity using Soxhlet apparatus. The extract was concentrated under reduced pressure to yield petroleum-ether extract (1.5 g), dichloro methane extract (1.8 g), ethyl acetate extract (10 g) and alcoholic extract (21 g). The preliminary chemical examination showed presence of terpenes in petroleum ether and dichloro methane extract.

The alcoholic and ethylacetate extract showed positive tests for presence of flavanoids. Ethyl acetate extract is selected for the present study.

Phytochemical screening: Phytochemical evaluation is performed by standard procedure. The plant products contain chemical constituents, which are of two types organic and inorganic. Organic constituents include carbohydrates, proteins, amino acids, fats and steroids, volatile oils, glycosides, alkaloids, tannins, phenolic compounds, oxygenic acid and enzymes. Inorganic constituents include calcium, magnesium, sodium, potassium, iron, sulphate, chloride *etc*. chemical test are performed on the ash for detection of elements present.

Syzygium alternifolium and the observation is given in Table-1. The chemical constituents present in the leaves of the *Syzygium alternifolium* is glycosides *i.e.* flavonoids.

TABLE-1

S. No.	Tests	Observation
1	Carbohydrates	-
2	Proteins	-
3	Amino acids	-
4	Fats and oils	-
5	Glycosides (flavonoids)	+++

Toxicity: Toxicity of *Syzygium alternifolium* was performed by following the OECD guidelines using the up and down method. Healthy mice Swiss albino mice weighing in the range of the 20-25 g where selected after the consultation of the statistician. Mice are subjected for the over night fasting. Drug was dissolved in the water and administered orally to the mice and were observe for behavioral profile, neurological profile and autonomic profile. Under behavioral profile, the mice were observed for visual placing, alertness, vocalization *etc*. Under autonomic profile, the animals were observed for optical signs, salivation, urination, *etc*. The LD_{50} was found to be 2 g/kg.

Analgesic activity: In the present study, Eddy's hot plate method[6] was selected for the screening of the analgesic activity. Painful reaction in experimental animals can be produced by applying noxious stimuli such as in the hot plate method heat is used a s a source of pain, animals are individually placed on a hot plate maintained at constant temperature (55 °C) and reaction of animal, such as paw licking or jump response is taken as the end point. The Swiss albino mice were selected for screening the analgesic activity, which fall in range 25-30 g of body weight. The animals were divided to three groups for control, standard and test containing six animals in each group. Distilled water was given to control group while aspirin was administered intraperitonially (50 mg/kg) and ethyl acetate extract was administered orally to the test group (100 mg/kg).

The alcoholic extract of *Syzygium alternifolium* has shown significantly increased in the reaction time. Where as the standard drug aspirin increased the reaction time for very long duration than the control. The standard drug is showing 178.99 % protection, where as the test is showing 78.94 % protection (Table-2).

TABLE-2

S. No.	Treatment	Mean latent period (sec)		Protection (%)
		Initial	After 120 min	
1	Control	3.75 ± 0.20	4.75 ± 0.320	–
2	Standard aspirin (50 mg/kg)	10.75 ± 0.47	13.25 ± 0.240	178.99
3	Test (100 mg/kg)	6.75 ± 0.47	8.50 ± 0.280	78.94

Values are mean ± SEM for four mice in the table.

By this observation we are able to know that the drug *syzygium alternifolium* is having analgesic activity.

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