April 2008 Volume 4 Issue 1

Trade Science Inc.

Natural Products

An Indian Journal

Full Paper

NPAIJ, 4(1), 2008 [64-66]

Antiulcer activity of *Boswellia serrata.roxb.*,

Thangaraj Uma[1], Kannaiyan Suria Prabha[2], Pichandy Muthu Prasanna[3]*

[1]Department of Pharmacognosy, C.L. Baid Metha College of Pharmacy, Chennai-600 096, (INDIA)

[2]Department of Pharmaceutics, C.L. Baid Metha College of Pharmacy, Chennai-600 096, (INDIA)

[3]Department of Pharmaceutics, Vels college of Pharmacy, Pallavaram, Chennai-600 117, (INDIA)

E-mail: p_ra2000@yahoo.com

Received: 11th March, 2008 ; Accepted: 16th March, 2008

ABSTRACT

The volatile oil of *Boswellia serrata*.Roxb[1]., showed significant antiulcer activity in albino rats by pyloric ligation model. The albino rats of either sex were divided in to three groups the animals were deprived of food for 24 hours before the commencement of experiment. The drugs were given intraperitoneally . The animals were sacrificed 6 hours after pylori ligation to observe gastric lesion. The gastric juice was collected and its pH determined titrimetrically by using 0.01N sodium hydroxide solution. The acid secretion and after index were analyzed by student 't' test. It showed significant antiulcer activity. The extract reduces the gastric activity and ulceration by histaminergic mechanism by H_2 receptor blockade.

KEYWORDS

Boswellia serrata volatile oil;
Antiulcer activity;
Histamine;
Gastric lesions.

INTRODUCTION

Boswellia serrata.Roxb., has been used for various medicinal purposes.It is used to treat in disease of bones, ulcers, rheumatic and nervous diseases, scrofulous affections, urinary disorders and skin diseases[2]. It is mixed with ghee for the cases of gonorrhoea and syphilis.

EXPERIMENTAL

Plant collection[3]

The oil of Boswellia serrata.Roxb., were colleceted from center of Dindugal district and authenticated by Dr.Nanthagopal, Dept. of Botany,National college Trichy. then the fresh material is subjected to hydrodistillation. The oil was then was tested for antiulcer activity on albino rats.

Physical paramerers of volatile oil

Essential oils are previously evaluated based on their organoleptic properties, particularly by the sniff taste. But this has an inability of not having a quantitative assessment. The physical characteristics for essential oils was introduced by otto wallach et al. The chemicals method permit a broad determination of the functional grouping only. Thus physico-chemical methods have proved of great vaule in the essential oil industry and continue to do so daily because of their simplicity and rapidity.The volatile oil obtained from the fruit of *Boswellia serrata* was subjected to determine the various physical parameters viz., solubility, specific gravity, refractive index, optical rotation and boiling point and the results obtained.

Solubility

Most of the essential oils are only cholophony, dammber and other resins. The determination of such solubility is a convient and rapid aid in the evalution of quantity of an oil. In general oil rich in oxygenated con-

stituents are more readily soluble in dilute alcohol than oil rich in terpenes. Adulteration with relatively insoluble material will often greatly affect the solubility.

Specific gravity[5]

Specific gravity is an important criteria of the quality and purity of an oil, of all the physicochemical properties, and it has been reported most frequently in the literature. Values for essential oil vary between the limits of 0.8470 at 15c in the general the gravity is less than 1. the specific gravity of an essential oil at 15c/ 15c, may be defined as the ratio of the weight of a given volume of oil at 15 c to the weight of an equal water at 15c.

Refractive index[5]

When a ray of light passes from a less dense to a more dense media, it is bent or refracted towards then normal. If e represents the angle of refraction and I represents the angle of incidence, according to the law of refraction.

Sin I / Sin e = N/n

Where n is the index of the refraction of the less dense medium and N is the index of refraction of the more dense medium.

Refractometer offers a rapid and convenient method for the determination of the physical constant. The Abbe type with a range of 1.3 to 1.7 is used for the routine analysis of essential oils.

Optical rotation[5]

Most of the oils when placed in a beam of polarized light possess the property of rotating the palne of polarized to the right or to the left . the extent of the optical activity of an oil is determined by a polarimeter and is measured in degrees of rotation. The oil should be free from a suspended material. Often oils are hazy owing to the presence of water. Such an oil should be dried with anhydrous sodium sulphite and filtered before the determination is attempted.

Boiling point

A pure essential oil boils at a fixed temperature which is characteristic of that substance. The presence of impurities rises its boiling point. If enough oil is available its boiling point is determined in an ordinary distillation apparatus. A pure oil will distill at constant temperature which is its boiling point. In case of oil is impure the boiling point will rise during the distillation.

Antiulcer activit[4]

The albino rats of either sex, varying between 100-130 gms were divided in group of six animals. The animals were deprived of food for 24 hours before the commencement of the experiment but water was allowed *ad libitum.* The drugs were given intraperitoneally 2hours prior 10 pylours liquation which was carried out according to the technique reported by Shay et al.,[4].

Group 1 received control vehicle (1ml/ kg)
Group 2 the oil of *B.serrata* (1ml/kg)
Group 3 received famotidine (10mg/kg) standard respectively. The animals were sacrificed 6 hours after pylori ligation to observe gastric lesion. The gastric juice was collected, centrifuged and its pH was determined.

Free and total acidity was estimated titrimetrically by using 0.01N sodium hydroxide solution. Data concerning the pH, acid secretion and alter index were analyzed by student 't' test and were shown in **TABLE** 1 .

RESULTS AND DISCUSSION

The physical parameters of volatile oil was done and the results observed were given in TABLE 1.

The oil of *B.serrata*.Roxb., showed significant antiulcer activity and is compared with that of standard drug famotidine (TABLE 2). It appears that the extract reduced the gastric activity and ulceration by histaminergic mechanism by H_2 receptor blockade it may be

TABLE 1 Physical parameters of volatile oil

Physical parameters	Values
Specific gravity	0.8470
Refractive index	1.4675
Optical rotation	-0.31
Specific rotation	-24.97 (c= 1.2 in butane)
Boiling point	156

TABLE 2: Antiulcer activity of B*oswellia Serrata.Roxb.,*

Group	pH	Total acidity (mEq/l)	Free acidity (mEq/l)	Response
Control	1.4± 0.08	94 ± 7.4	80±0.4	36.5± 3.2
Oil of *B.serrata*.Roxb.,	3.2±0.06**	32±3.1**	18±1.2**	16.4±1.6**
Famotidine (10mg/kg)	4.7±0.09*	30 ± 2.2*	21 ± 1.2*	13.7 ± 1.6*

Mean ± SEM n = 6 ** P < 0.001 * P < 0.05

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assumed that oil of *B.serrata*.Roxb., protects experimental animals from gastric ulceration induced by stress, pyloric ligation, aspirin and related compounds.

Ethanol induced gastric lesion formation may be due to stabis in gastric blood flow which contributes to the development of the haemarrhage on necrotic aspect of tissue injury. It has also been reported that levkotriene antagonist and 5-lipoxgenenase inhibitors are capable of inhibiting alcohol and NSAID-induced gastric ulceration in rats

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