African Journal of Pharmacy and Pharmacology Vol. 3(11). pp. 560-561, November 2009
Available online http://www.academicjournals.org/ajpp
ISSN 1996-0816 © 2009 Academic Journals

Short Communication

Neutral components in the leaves and seeds of *Syzygium cumini*

A. Kumar[1, 2*], T. Jayachandran[1, 2], P. Aravindhan[1, 2], D. Deecaraman[1, 2], R. Ilavarasan[3] and N. Padmanabhan[1, 2]

[1]Dr. M. G. R. University, Chennai-95, India
[2]Department of Chemical Engineering, Dr. M. G .R. University, Maduravoyal, Chennai-600 095, India.
[3]Assistant Director, CSMDRIAS, Chennai-109, India.

Accepted 21 October, 2009

The *Syzygium cumini* has medicinal importance as an anti-inflammatory, antibacterial, antiulcergenic. The major components of the leaves and seeds have the acid, neutral and phenolic fractions. In this study, the neutral fraction components which form the bulk is studied in detail and results were presented. The neutral components of the leaves and seeds have been studied by gas-chromatography. A total of 13 and 42 compounds were identified in the leaves and seeds respectively. The main compounds in the leaf extract were heptacosane, nonacosane, octacosane, tricontane, octadecane and in the seed extract, 4-(2-2-dimethyl-6-6-methylenecyclohexyl) butanol, decahydro-8a-ethyl-1,1,4a,6-tetramethylnaphalene, octadecane, 1-chlorooctadecane and tetratetracontane were identified. The major compound in the leaves was octadecane and in the seed 1-chlorooctadecane.

Key words: *Syzygium cumini,* octadecane, nonacosane.

INTRODUCTION

There are chemical compounds which occur naturally in plants and possess wide important applications in medicine, flavour and perfume formulations. *Syzygium cumini* is a tropical aromatic tree and confined to India including Andaman Islands, Bangladesh, Burma and Sri Lanka.

Most of the plant parts are used in traditional system of medicine in these countries; its bark is good for sore throat, bronchitis, asthma, thirst, dysentery, blood impurities and to cure ulcers. The fruits can remove bad breath, act as liver tonic, enrich blood and strengthens teeth and gums (Kirtikar and Basu, 1975; Priyavtra and Mehta, 1969).

The leaves strengthen teeth and gums. The seeds received considerable attention in folk medicine, Ayurveda and Unani traditional system of medicine, as it is antidiabetic (Zafar, 1994; Satyavati and Gupta, 1973; Shukla et al., 2000). The seeds are used to cure diabetes, diarrhoea, dysentery and blood pressure Chorpa et al., 1956; Lal and Chandhuri, 1968). The powdered plant parts are used to lower blood glucose (level in diabetic patients and in experimentally induced diabetic diabetic animals (Ravi, 2004a; Srivastava, 1953; Lewis et al., 1956). The seed kernels have anti-diabetic property (Ravi, 2004b).

*Corresponding author. E-mail: ayanakumar@yahoo.com.

MATERIALS AND METHODS

Plant material

The fully mature *S. cumini* seeds and leaves were collected in June 2006, from Kattuppalayam in district of Erode, South India from a single tree are used throughout the investigation.

Chemical used

Analytical grade of n-propanol, methylene dichloride, sodium bicarbonate and sodium hydroxide were used. The dried leaf and seed powder were extracted successively in a Soxhlet apparatus with n-propanol for 24 h. From the extract obtained, the solvent was removed under vacuum. The residue was dissolved in methylene dichloride. It was subsequently washed with 10% sodium bicarbonate and then with 5% NaOH solution to remove all the fatty acids and phenolic compounds respectively. The organic layer was washed with water and the solvent was removed under vacuum. The residue was analysed by gas chromatography (GC) and shown in Table 1.

AGILENT 5973- MSD with a DB-5ms capillary column (30 m ×

Table 1. Chemical composition of leaves and seeds of *S. cumini*.

Retention time	Major compounds	Percentage composition	
		Leaves	Seeds
20.63	4-(2,2-Dimethyl-6-methylenecyl)butanol	---	05.29
21.61	Decahydro-8a-ethyl-1,4a,6-te tramethylnaphalene	---	08.02
22.02	Eicosane	04.02	01.71
22.98	Heptacosane	04.86	01.72
24.11	1-chlorooctadecane	---	33.21
24.87	Nonacosane	09.98	---
25.46	Octacosane	07.38	03.97
26.37	Triacontane	09.38	---
27.12	Tetratetracontane	---	09.24
28.22	Octadecane	16.91	05.15

0.25 mm, film thickness 0.25 µm) with helium as a carrier gas at a flow rate of 1.0 ml/min was employed for the present studies. Oven temperature was programmed from 70 to 280°C at a rate of 12°C/min and a final hold time of 10 min; 2 µl sample was injected under 1:100 split ratio.

RESULTS AND DISCUSSION

The neutral components from the leaves and seeds of *S. cumini* were light yellow in colour and were subjected to GC. The analysis facilitated the identification of the components (Table 1), where the retention time and percentage of composition have been presented. The leaf oil consists of 16.91% octadecane, 9.98% nonacosane, 9.38% triacontane, 7.38% octacosane, 4.86% Heptacosane, 4.25% hexadecanoic acid and 4.02% eicosane. The seed oil consists of 33.2% 1-chloro-octadecane, 9.24% tetratetracontane, 8.02% decahydro-8a-ethyl-1,1,4a,6-tetramethylnapahthalene, 5.29% 4- (2-2-dimethyl-6-6-methylenecyclohexyl) butanol, 5.15% Octadecane, 3.97% octacosane, 1.72% heptacosane and 1.71% eicosane. The present study represents the comprehensive analysis of neutral components of the *S. cumini* leaves and seeds. It is suggested that these studies will be helpful in utilizing the abundant source of this plant in the production of pharmaceutical and other industrial products.

ACKNOWLEDGMENT

The author wishes to thank Dr. M. G. R. University, Chennai-95 for providing experimental facilities during the tenure of this work.

REFERENCE

Chorpa RN, Nayar SL, Chopra IC (1956). Glossary of Indian Medicinal Plants, CSIR, New Delhi. pp. 161-238.

Kirtikar KR, Basu BD (1975). In: Indian Medicinal Plants. New Delhi, 2: 1052-1053.

Lal BN, Chaudhuri KD (1968). Observation on *Momordica* (*Kavellaka*) and *Jambo* (*Eugenia jambolana*) as diabetic. J. Res. Ind. Med., 2: 161.

Lewis YS, Dwarakanath CT, Johar DS (1956). Acids and Sugars in *Eugenia jambolana*. J. Sci. Indusur. Res., 15: 280-281.

Priyavtra Sharma, Mehta PM (1969). In: Dravyaguna vignyam. Part II & III, The Chowkhamba Vidyabhawan, Varansi. Pp. 586.

Ravi K, Sekar DS, Subramanian S (2004a). Hypoglycemic activity of inorganic constituents in *Eugenia jambolana* seeds on streptozotocin induced diabetic rats. Bio. Trace Elem. Res., 99 (1-3): 145-155.

Ravi K, Sivagnanam K, Subramaniam S (2004b). Anti-diabetic activity of *Eugenia jambolana* seed kernels on streptozotocin-induced diabetic rats. J. Med. Food, 7(2): 187-191.

Satyavati GV, Gupta AK (1973). Medicinal plants of India, Indian Council of Medical Research, New Delhi. Pp. 696.

Shukla R, Sharma SB, Pari D, Prabhu KM, Murthy PS (2000). Medicinal plants for treatment of diabetes mellitus. Ind. J. Clin. Biochem., 15: 169.

Srivastava HC (1953). Paper chromatography of fruit juices: Part 1. J. Sci. Industr. Res., 12B: 363-365.

Zafar R (1994). Medicinal plants of India CBS Publications and Distributors, New Delhi. p. 105.