Dhaka Univ. J. Eng. & Tech. Vol. 1(1) 75-76, 2010 (July)

Phytochemical Study of *Xylia dolabriformis*

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I. Introduction

Xylia dolabriformis, locally known as "Loha kath" belongs to the family 'Fabaceae' [1]. It is a large deciduous tree. Its bark is grey or reddish-brown with short cracks irregularly distributed. Its leaves are tripinnate. Their flowers are pale yellow, in globose long-pedunculate heads. Seeds 6-10, compressed, testa brown, shining. Geogrphicaclly they are distributed in Africa and Asia [2]. This report deals with the isolation of one compound from this plant.

II. Materials and Methods

General experimental procedures

Fresh distilled solvents were used in this investigation. The ^{1}H-NMR spectrum of purified compound was recorded on an OBFRQ 400 MHz NMR spectrometer at 23.7°C in $CDCl_3$ using tetra methyl silane (TMS) as the internal reference. Silica gel 60H is used in vacuum liquid chromatography (VLC).

Collection of plant

The stem of the plant *Xylia dolabriformis* was collected from National Botanical Garden, Mirpur, Dhaka in the month of May 2009 and was identified by a taxonomist. A voucher specimen representing this collection has been maintained at Bangladesh National Herbarium; (accession number **DACB no. 32761).**

Extraction and isolation of compound

The stem bark of the plant was collected in fresh condition. Then it was washed with water to remove dust and other foreign particles. It was chopped into small pieces and sun-dried for few days and then dried in an oven at reduced temperature (not exceeding 40°C) to facilitate grinding. The powdered material (400 gm) was extracted with methanol (1.5 L) in an air tight bottle for seven days with occasional shaking and stirring. The extract was then filtered off through a cotton plug and finally through Whatman no. 1 filters papers. The filtrate thus obtained was concentrated with a rotary vacuum evaporator at a low temperature and pressure to yield gummy mass (50 gm). A portion of the dry mass (4.0 gm) was subjected to vacuum liquid chromatography (VLC) over silica gel 60H using petroleum ether with increasing percentage of ethyl acetate and then ethyl acetate with increasing percentage of methanol. A total of sixteen fractions (F_1 to F_{16}) were obtained each 100 ml. Thin layer chromatographic (TLC) [3] analysis revealed the fraction F_5 to contain a single compound. Slow evaporation of solvents yielded crystalline compound designated as XD-1.

Characteristics of the isolated compound

White crystalline powder; melting point 195-198° C; soluble in chloroform and ethyl acetate; ^{1}H NMR (400 MHz, $CDCl_3$) δ: 0.82 (s, 25-H_3), 0.90(s, 28- H_3), 0.91 (s, 29- H_3), 0.95 (s, 30- H_3), 1.06 (s, 24- H_3), 1.07 (s, 26- H_3), 1.08 (s, 23-H_3), 1.13 (s, 27- H_3), 5.56 (dd, J=8.0, 3.2 Hz,12-H (olefinic proton)) .

III. Result and discussion

The compound XD-1 obtained from column fraction F_5 melted at 195 to 198° C. The ^{1}H NMR data was analyzed and the different protons and carbon are assigned (as indicated in the given data) [4]. Its spectral data displayed eight methyl singlets at δ 0.82, 0.90, 0.91, 0.95, 1.06, 1.07, 1.08, and 1.13 while the olefinic proton (J= 8.0, 3.2 Hz) at δ 5.56. Finally the ^{1}H NMR spectral data was compared with the published values [5, 6] confirmed the identity of compound as β-amyrinone. The structure is:

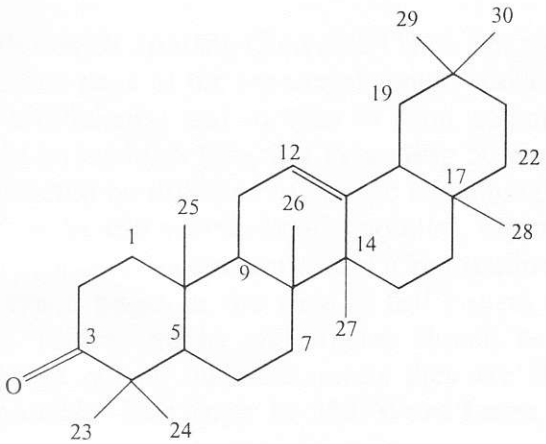

Fig. 1: β-amyrinone

Although β-amyrinone has previously been reported from many plants [7], this is the first report of its isolation from *Xylia dolabriformis*.

Acknowledgements

Authors wish to thank the Department of Pharmaceutical Chemistry, University of Dhaka.

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