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CHOLESTEROL FROM BUTEA MONOSPERMA (BARK)

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ABSTRACT

During isolation and identification of benzene: ether (5:5) extract of the stem bark of *B. monosperma*. ethylacetate: benzene fraction were subjected to rechromatography. isolated white solid substance were purified and crystallized by chloroform: methnol. After isolation and purification afforded white crystalline substance which was subjected to physical, chemical and spectral analysis and identified as cholest-5-ene-3, 25diol on the basis of spectral evidences.

KEYWORDS: *Butea monosperma*; stem bark; novel compound (cholesterol).

INTRODUCTION

Butea monosperma (lam.)/ kuntze (bark) locally known as palas, dhak and flame of forest is belonging family ***leguminoceae.*** The bark of this plant has been reported in folk medicine as a cure for sanke bite, skin disease, bone fractures, rectal disease, ulcers, tumours, hydrocele and diabetes. The bark is acrid, bitter, astringent, digestive, constipating, anthelmintic and tonic.[1-4] Earlier studies on this plant have resulted in the isolation of flavoniods and flavonoid glycosides, as palastrin, isobutein, coreopsin, monospermacide and isomonospermacide.[5-9] In this communication we have discuss the isolation and characterization of novel compound (cholestrol).

EXPERIMENTAL

Collection, identification and preparation of plant materials (extract) The bark of plant were collected from the nearby area of Ujjain city in month of March. The plant material bark was identified from school of studies in Botany Vikram University Ujjain. The bark of Plant was shaded, dried and powdered.

Extraction and isolation

powdered (15kg) bark of B.monosperma was extracted exhaustively with benzene: ether in a soxhlet extractor . The solvent was recovered by rotator evaporator, under vaccum pressure, to afford dark greenish brown oily mass. In this communication we have studies only benzene: ether extract. of *B.monosperma* (bark).

Spectroscopic Characterization

Different spectroscopic method were used to elucidate the structure of isolated compounds among the spectroscopic techniques IR, ^{1}H-NMR, mass Spectra were carried out IR spectra was recorded in KBr on perkin Elmer-377. The ^{1}H-NMR spectra was recorded on 300MH$_Z$ XL spectrometer and 200MHz Brucker WM spectrometer with TMS as internal standard.The mass spectra was recorded on Jeol–JMSD-300 mass spectrometer. The column chromatography were carried out on alumina grade third and TLC on silica gel. The spots were visualized by exposure to iodine vapour or charring with conc. H_2SO_4- Vanillin spray.

The IR spectrum (λ_{max}.KBr, cm^{-1}) the IR spectrum showed absorption peak at 3431, 2935, 2852, 1616, 1465, 1379, 1057, 1027, 958 & 802 cm^{-1}.

^{1}HNMR (CDCL$_3$ 200MH$_Z$,ð) ^{1}HNMR has given signals at ð0.65(s,3H,-CH$_3$,C-18), 0.92(d,3H.1-CH3,C-21)ð1.00 (S,3H,1-CH$_3$,C-19), ð1.3(S,6H,2-CH$_3$, C-26 &,C-27), 1.48(S,1H,OH), 3.8(m,1H,-CHOH) 5.3 (d,1H, CH=CH), EIMS: m/z(rel.int.,%): Mass spectrum showed molecular ion peak at m/z 402 and molecular formula $C_{27}H_{46}O_2$ other ion peaks were also observed at M$^+$ 392(20.7), 366 (12.8), 329(56.7), 273(43.8), 231(43.2), 213(34.5),161(22.7), 145(12.7),81(97), 571(100), 44(89).

RESULT AND DISCUSSION

The benzene: ether (5:5) extracts of the bark were subjected to column chromatography over alumina gr.III eluated from solvent increasing order of polarity. its ethylacetate: benzene fraction was subjected to rechromatography over silica gel column and examine by TLC (benzene:ether:aceticacid,8/2/0.5,v/v) show a single spot.

compound: identified as cholest -5-ene-3,25diol, M$^+$402, $C_{27}H_{46}02$. Isolated from benzene: ether extract over silica gel. Column. The ethylacetate: benzene fraction (2:8) was subjected to rechromatography (:benzene) eluate afford compound.M.,P.173^{0}C. IR bands at 3431cm^{-1} (OH), 1616 cm^{-1} (double bond), other bands at 2935, 2852, 1616 1465, 1379, 1057, 1027 and

958 & 802cm^{-1} (CH stretching and bending vibration.and unsaturated cholestrol nature of the molecule.[12-13]

It its PMR spectrum the signal at ð0.65(s,3H,-CH_3,C-21), & ð1.00 (S,3H,1-CH_3,C-19), were assigned to angular methyl group. Adoublet at 0.92(d,3H.1-CH3,C-21), methyl protons ð1.3 (S,6H,2-CH_3, C-26 &,C-27), methine proton attached to OHgroup at C-3 a sharp singlate at1.48(S,1H,OH)due to OHgroup A doublet at 5.3 (d,1H, CH=CH)due to unsaturation at C-5 in the ring B.

Its Mass spectrum. showed a M^+ at m/z 402 abundant fragments at m/z 329(M+-78), 273(M+-side chain), 231(M++side chain+ring D cleavage+H2o) INDICATED THE PRESENCE OF CHOLESTANE SKELETON. other fragments obtained[16] m/z 161, 145, and 81 were also inconsistent with the proposed structure of the compound. Thus the compound identified as cholest -5-ene-3,25diol. All these spectral data are similar to the compound synthesized, 19-20. This is first time isolated from this source.

CONCLUSION

From above discussion the compound isolated from benzene: ether (5:5) extract fractions after rechromatography and their structures identified by physico-chemical techniques**.**

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