4. G. MAFFI, E. TESTA and R. EFFORA, *J. Farmaco. (Pavia) Ed. Sci.*, 1958, p. 187.

5. I. LALEZARI, A. SHAFIEE, A. BADALY, M M. SALIMI, M. A. KHOYI, R. ABTAHI and M. R. ZARRINDAST, *J. Pharm. Sci.*, 1975, 64(7), 1250.

6. R. DISCHINSKY, *U. S. Appl.*, 2, 707, 186 ; Through *Chem. Abs.*, 1956, 50, 5766i.

7. S. AJMERA and P. C. DANDIYA, *Proc. Dec. Confr. Indian Pharmacol. Soc.*, 1977, Abstr. No. 88.

8. M. W. GOLDBERG and H. H. FEHR, *U. S. Appl.*, 2, 620, 086 ; through *Chem. Abs.*, 1953, 47, 6487d.

9. H. VERMA, A. K. CHATURVEDI, A. CHOWDHARI and S. S. PARMER, *J. Pharma. Sci.*, 1974, 63 (II), 1740.

10. B. R. PANDEY, K. RAMAN, J. P. BARTHWAL, K. P. BHARGAVA and S. S. PARMAR, *Proc. of Dec. Confr. of Indian Pharmacol. Soc.*, 1977, Abstr. No. 84.

11. G. FUNATSUKURI and M. VEDA, *Jap. Pat.*, 20, 944 ; through *Chem. Abs.*, 1967, 66, 46430.

12. A. I. VOGEL, *Text Book of Practical Organic Chemistry*, IIIrd ed., ELBS and Longmans Group, 1971, p. 909.

13. HERBERT and SHEMIN, *Organic Synthesis, Coll. Vol. 2*, 1943, p. 1.

14. H. D. DAKIN, *J. Biol. Chem.*, 1929, 82, 439.

15. J. B. NIENDER and A. ZIERING, *J. Amer. Chem. Soc.*, 1942, 64, 885.

16. G. S. WEIL, *Biometrics*, 1952, 8, 249.

Chemical Constituents of the Stem bark of *Elaeodendron glaucum* Pers

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ELAEODENDRON glaucum Pers (Celastraceae) is generally grown for its medicinal importance[1]. The leaves are found to have a sternutatory and fumigatory action. They are also used as a snuff to relieve headache. The gum obtained from the plant dissolves in water to give an adhesive. A survey of literature revealed no work on this plant and hence an investigation of its stem bark was undertaken. We have obtained n-octacosanol, friedelin, β-sitosterol, betulonic acid, 23-hydroxy betulin, β-sitosterol-β-D-glucoside from the benzene extract and dulcitol from the alcohol extract of the stem bark.

The finely ground stem bark was extracted thoroughly with benzene followed by extraction with alcohol.

Benzene Extract :

This was concentrated under vacuum when a brown mass was obtained which was chromatographed over silica gel.

n-Octacosanol : Elution of the column with pet. ether-benzene (3:1) afforded n-octacosanol, white granules m.p. 83-4° (EtOAc), $C_{28}H_{58}O$, I.R., ν_{max}^{nujol} : 3230, 730 and 720 cm^{-1} ; acetate (Ac_2O/pyr.), m.p. 64-5°.

Friedelin : Elution of the column with pet. ether-benzene (1:1) furnished friedelin, white microneedles, m.p. 258-60° (pet. ether), $C_{30}H_{50}O$, M^+ 426, I.R., ν_{max}^{KBr} : 1720 cm^{-1} ; oxime, m.p. 2 0-2°. It was identical (mmp, TLC and IR) with an authentic sample.

β-Sitosterol : Elution of the column with benzene yielded β-sitosterol, m.p. 136-7° (EtOH); acetate (Ac_2O/pyr.) 125-6°, identical (mmp and TLC) with an authentic sample.

Betulonic Acid : Elution of the column with benzene-ethyl acetate (1 : 1) furnished white crystals of betulonic acid m.p. 251-3° (C_6H_6 : EtOAc), found : C, 79.05 ; H, 10.25% $C_{30}H_{46}O_3$ requires C, 79.25 ; H, 10.20%, I.R., ν_{max}^{KBr} ; 3100 (broad), 1710, 1690 cm^{-1} ; methyl ester (CH_2N_2), m.p. 162-3°, identical (mmp, TLC and IR) with an authentic sample.

23-Hydroxy betulin : Further elution of the column with benzene-ethyl acetate (1:1) yielded white microneedles of 23-hydroxybetulin, m.p. 256-8° (C_6H_6 : EtOAc), found : C, 78.80 ; H, 10.70% $C_{30}H_{50}O_3$ requires C, 78.55 ; H, 10.99%. I.R., ν_{max}^{KBr} : 3380 cm^{-1} ; acetate (Ac_2O/pyr.), amorphous, uncrystallizable, acetate group determination showed the presence of three hydroxy groups in the compound. Identical (mmp, TLC and IR) with an authentic sample.

β-Sitosterol-β-D-glucoside : Elution of the column with ethylacetate-methanol (1:1) furnished white microneedles of β-sitosterol- β - D - glucoside, m.p. 290-2° (MeOH), found : C, 72.79 ; H, 10.23% $C_{35}H_{60}O_6$ requires C, 72.91 ; H, 10.41%. I.R., ν_{max}^{KBr} : 3400 cm^{-1}; acetate, m p. 166°. On acidic hydrolysis, β-sitosterol, m.p. 135-7°, identical (mmp and TLC) with an authentic sample and glucose (Co-paper chromatography) were obtained.

Alcohol Extract :

Dulcitol : The concentrated extract when kept in a refrigerator for 48 hours deposited a white solid. On recrystallisation, it yielded dulcitol, white shining crystals, m.p. 185-6° (50% EtOH) ; hexaacetate (Ac_2O/pyr.), m.p. 166-8°. It was identical (mmp and paper chromatography) with an authentic sample.

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Reference

1. The Wealth of India, "A Dictionary of Indian Raw Materials and Industrial Products", Vol. IV, 1953, p. 3.