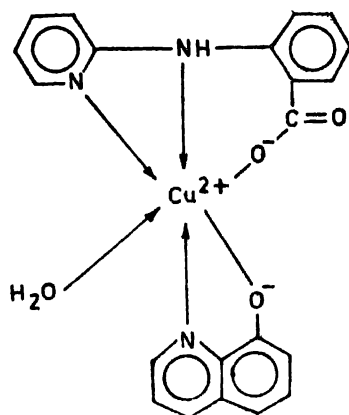




Acknowledgement

The authors express their gratitude to Prof. J. P. Tandon, Rajasthan University, Jaipur, and to Dr. S. M. L. Gupta, Agra College, Agra, for their valuable suggestions. The authors also thank the C. S. I. R., New Delhi, for financial help.

References

1. A. YOUNG and T. R. SWEET, *J. Am. Chem. Soc.*, 1958, **80**, 800.
2. M. CEVOLA, A. S. THOMPA, A. V. GELLIANO and P. S. GENTILE, *Inorg. Chem.*, 1962, **1**, 290.
3. W. HARRIS and T. R. SWEET, *J. Phys. Chem.*, 1956, **60**, 509.
4. S. CHABERCK and A. E. MARTELL, *J. Am. Chem. Soc.*, 1952, **74**, 5052.
5. L. C. THOMPSON and J. A. LORAAS, *Inorg. Chem.*, 1963, **2**, 89.
6. S. RAMAMOORTHY and M. SANTAPPA, *Indian J. Chem.*, 1971, **9**, 381.
7. A. I. VOGEL, "A Text Book of Quantitative Inorganic Analysis", Longmans, London, 1962, pp. 431, 418, 463, 430.
8. S. KHANNA, R. KUMAR and G. K. CHATURVEDI, *Indian J. Chem., Sect. A*, 1980, **19**, 766.
9. A. E. MARTELL, S. CHABERCK, JR., S. C. COURTNEY, S. WESTERBACK and H. HYTIAMEN, *J. Am. Chem. Soc.*, 1967, **79**, 3036.

Phytochemical Investigation of *Cassia mimosoides* Linn

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Manuscript received 30 April 1985, revised 6 September 1985,
accepted 8 May 1986

CASSIA mimosoides Linn.¹ (leguminosae) is a small tree occurring throughout India and its roots are extensively used as an indigenous drug in the treatment of spasm of stomach. Literature survey revealed that the roots and seeds of this plant was investigated earlier². A chemical investigation of the aerial parts (leaves and stems) of this plant was, therefore, undertaken.

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The air-dried powdered aerial parts (leaves and stems) of *C. mimosoides* were successively extracted with petroleum ether (b.p. 60-80°) and chloroform. The concentrated petroleum ether extract was chromatographed over silica gel. Elution of the column with petroleum ether (b.p. 60-80°)-benzene (1 : 1) mixture afforded a white crystalline solid, m.p. 88°; $\nu_{\max}$ (KBr) 3 300 cm^{-1} ; m/z 452 (M^+), 434, and 421. It was identified as n-hentriacontanol by the usual comparison (m.m.p., co-tlc and co-ir) with an authentic sample.

The concentrated chloroform extract of the defatted aerial parts was subjected to chromatographic separation over silica gel with solvents of increasing polarity. The benzene-chloroform (1 : 1) eluate furnished a yellow solid, m.p. 195°, $C_{15}H_{10}O_4$ (M^+ 254); $\nu_{\max}$ (KBr) 1 660 (non-chelated C=O) and 1 625 cm^{-1} (chelated C=O). It responded to methanolic magnesium acetate test³ for anthraquinones and was characterised as chrysophanol⁴ by direct comparison (m.m.p., co-tlc and co-ir) with an authentic sample. Continued elution of the column with the same solvent mixture yielded a very small amount of a solid which crystallised from glacial acetic acid as yellow leaflets, m.p. 160-2°, $C_{15}H_{10}O_5$ (M^+ 284); $\lambda_{\max}$ (EtOH) 257, 267, 275 sh, 288, 390, 415 and 435 nm; $\nu_{\max}$ (KBr) 1 670, 1 638 and 1 675 cm^{-1} . It responded to the test³ for anthraquinone. Further characterisation of this solid was not possible due to paucity of the material.

Acknowledgement

Sincere thanks are due to R.S.I.C., Bose Institute, Calcutta, for mass spectral analysis. Financial assistance from U.G.C., New Delhi, is gratefully acknowledged.

References

1. R. N. CHOPRA, S. L. NAYAR and I. C. CHOPRA, "Glossary of Indian Medicinal Plants", C. S. I. R., New Delhi, 1956, p. 54.
2. S. S. SUBRAMANIAN and S. NAGARJAN, *Indian J. Pharm.*, 1970, **32**, 70.
3. L. NIHOUL, *J. Pharm. Belg.*, 1960, **15**, 49.
4. H. HEILBRON and H. N. BUNBURY, "Dictionary of Organic Compounds", Eyre and Spottiswoods, London, 1965, Vol. 2, p. 707.

Chemical Examination of *Ammannia baccifera* Linn. (Lythraceae)

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Manuscript received 2 July 1985, revised 7 October 1985,
accepted 17 February 1986

AMMANNIA baccifera Linn., (family : Lythraceae) is an important medicinal plant. Survey of literature reveals that no work has been reported so

far, and therefore a systematic chemical examination of its fruits, leaves and roots of this plant was undertaken.

Fruits :

Air-dried powder (1.5 kg) of the fruit was extracted successively with petroleum ether (b.p. 60-80°), chloroform and methanol. The petroleum ether extract (36 g) was a semi-solid, a part (17 g) of which was chromatographed over silica gel (500 g). Elution with petroleum ether gave a hydrocarbon (200 mg), m.p. 64-7°; $\nu_{\max}$ (KBr) 2 960-2 840 (C-H stretch of alkanes) and 1 450 cm^{-1} (C-H bend of alkanes); m/e 436 (M^+) 421 ($M^+ - \text{CH}_3$), 407, 393, 379 and 365. It was identified as hentriacontane⁷.

Further elution with petroleum ether-benzene (7 : 3) gave a white solid (360 mg), m.p. 84-8°; $\nu_{\max}$ (KBr) 3 400 (OH), 2 930, 2 860 and 1 465 cm^{-1} ; m/e 448 ($M^+ - \text{H}_2\text{O}$), 433 ($M^+ - \text{H}_2\text{O} + \text{CH}_3$), 419, 405 and 391. It was characterised as dotriacontanol⁷. The petroleum ether-benzene (1 : 1) eluate yielded a solid (30 mg), m.p. 112-6°; $\nu_{\max}$ (KBr) 3 400, 2 930, 2 860 and 1 475 cm^{-1} ; m/e 436 ($M^+ - \text{H}_2\text{O}$), 418 ($M^+ - 2\text{H}_2\text{O}$)^{1,2}, 404, 390, 376, 362 and 348-52. It indicated to be a C_{30} -straight-chain diol, and formed a diacetate, $\text{C}_{34}\text{H}_{68}\text{O}_4$, $\nu_{\max}$ 1 735 cm^{-1} . It appears to be 1,30-triacontanediol⁸.

The chloroform extract on similar chromatographic analysis yielded dotriacontanol in petroleum ether (b.p. 60-80°)-benzene (4 : 1) eluate, while ethyl acetate eluate furnished a solid, m.p. 278-80° which responded to positive L.B. test for sterol. It was identified as β -sitosterol- β -D-glucoside from m.m.p., co-tlc and co-ir studies with authentic sample.

Leaves :

Air-dried powder (1.0 kg) of the leaves was extracted successively with petroleum ether, chloroform, acetone and methanol in a Soxhlet apparatus. Concentrated petroleum ether extract on usual chromatographic resolution over silica gel afforded hentriacontane, dotriacontanol and β -sitosterol while no compound could be isolated from the chloroform extract.

Acetone extract on concentration deposited a solid which was crystallised as needless (2 g) from pyridine. The compound did not melt up to 350° and was insoluble in common organic solvents; $\lambda_{\max}$ (MeOH) 255 and 362, (MeOH + NaOAc) 278 and 355, (MeOH + AlCl_3) 272 and 380 nm; $\nu_{\max}$ (KBr) 3 480, 1 720, 1 620, 1 580, 1 500 cm^{-1} ; δ (DMSO- d_6) 7.5 (s) and 3.5 (br, s, D_2O exchangeable, OH). The compound was identified as ellagic acid by comparison with the reported spectral data⁹. The mother-liquor (25 g) remaining after the separation of ellagic acid was chromatographed over silica gel (500 g), and the ethyl acetate-acetone (19 : 1) eluate afforded a yellow solid (60 mg), m.p. 306-11°, which gave positive ferric chloride test for phenolic compound. It was found to be identical with the authentic sample of quercetin in tlc, m.p., m.m.p. and ir spectrum.

Roots :

Powdered roots (550 g) were extracted with petroleum ether (b.p. 60-80°). On concentration, the extract gave a solid which was crystallised repeatedly from ethyl acetate-benzene to yield white plates (0.9 g), m.p. 306-11°; $\nu_{\max}$ (KBr) 3 400-3 100 (OH), 1 690 (C=O), 1 640 and 882 cm^{-1} (isopropylene group)⁴. It responded to L.B. test for triterpene and was identified as betulinic acid by comparison of its mass⁵ and pmr⁶ spectra with those reported in literature. The mother-liquor (6.0 g) remaining after the separation of solid on chromatographic analysis over silica gel (200 g) gave a white solid (40 mg), m.p. 204-9°. It was found to be identical in all respects (co-tlc, m.m.p., ir spectra) with the reference sample of lupeol.

References

1. E. RYHAGE and E. J. J. STENHAGEN, *Lipid Res.*, 1960, 1, 861.
2. A. KINMANN and C. WAKSELMAN, *Bull. Soc., Chim. Fr.*, 1967, 3, 937.
3. B. O. SOWEMINO, F. H. SEGELMAN, M. TINWA, H. WAGNER, G. J. PERSINOS and N. R. FRANSWORTH, *J. Pharm. Sci.*, 1973, 62, 1358.
4. L. J. BELLAMY, "Infrared Spectra of Complex Molecules", Methuen, London, 1964.
5. H. BUDZIKIEWICZ, J. M. WILSON and C. DJERRASSI, *J. Am. Chem. Soc.*, 1963, 85, 3698.
6. M. SHAMMA, R. E. GLICK and R. J. MAMMA, *Org. Chem.*, 1962, 27, 4512.
7. W. KARRER, "Konstitution und Vorkommen der organischen Pflanzenstoffe, Band 12", Birkhauser Verlag, Basel, 1958.
8. H. A. SZYMANSKI, "Interpreted IR Spectra", Plenum Press, Data Division, New York, 1966, Vol. II.

Extraction Studies of Ruthenium(III) and Platinum(IV) with S-Benzylidithiocarbazate

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Manuscript received 16 April 1985, revised 14 April 1986,
accepted 23 April 1986

A number of spectrophotometric reagents are known for the determination of ruthenium and platinum. Many sulphur containing reagents are found to be good extractants for these two metals¹⁻⁸. But no attempt has yet been made to study the colour reaction of ruthenium or platinum with S-benzylidithiocarbazate (BDTC). The present investigation describes BDTC as new sensitive spectrophotometric reagent for micro determination of Ru^{III} at pH 2 and Pt^{IV} at pH 0.3. The Ru^{III} and Pt^{IV} complexes gave $\lambda_{\max}$ at 425 and 352 nm, respectively. The composition and stability constants of the extractable species were determined.