

Phytochemical Studies on *Eclipta alba*B. C. SIKRORIA, S. J. SRIVASTAVA and
G. S. NIRANJAN*Department of Chemistry, D. V. (P. G.) College,
Orai-285 001, U. P.Manuscript received 25 August 1981, revised 8 February 1982,
accepted 11 March 1982

ECLIPTA alba (Compositae), popularly known as 'Bringraj' is an annual herb, growing in moist environment all over India. It is reputed for its high medicinal values¹. A perusal of literature revealed that the leaves and stems of the plant have been examined chemically²⁻⁷ but no phytochemical study of the roots of this plant seems to have been done. A systematic study of this part was therefore undertaken and the results are reported here.

The dried and crushed roots (2 Kg) were extracted exhaustively with hot petroleum ether (60-80°) and ethanol successively. The concentrated petroleum ether extract was saponified with 0.5 N KOH. It yielded an unsaponifiable matter which was extracted with ether. The aqueous layer had some insoluble floating material which was separated and dissolved in chloroform. Chloroform was distilled off under reduced pressure to give a cream coloured solid which on column chromatography over silica gel afforded compound (A) and (B). The concentrated ether extract was chromatographed with petroleum ether : ether (1 : 4) to give compound (C). After refluxing with benzene the concentrated ethanolic extract of the root was chromatographed over silica gel to give compound (D).

Compound (A): Elution with petroleum ether : benzene (1 : 1) yielded a white compound, m.p. 86-87°, C₃₁H₆₄O; ν_{max}^{KBr} cm⁻¹ 3289, 775 and 772, mass spectrum, m/e 434 [M⁺-H₂O], 406 [M⁺-H₂O-C₂H₄] and 31 (-CH₂OH).

It was characterised as hentricontanol⁸ by co-tlc and m.m.p. with an authentic sample and by preparing its acetate, m.p. 69-70°, iodide, m.p. 69° and hentricontanoic acid, m.p. 98°.

Compound (B): Elution with ethanol : benzene (1 : 1) afforded a white solid compound, m.p. 78-79°, C₂₇H₅₆O, ν_{max}^{KBr} cm⁻¹ 3440, 1100, 765 and 720. It formed an acetate, m.p. 44-45°. It was identified as heptacosanol-14 by co-tlc and m.m.p. with an authentic sample.

Compound (C): Elution with petroleum ether : ether (1 : 4) gave colourless needles, m.p. 166-68°, C₂₉H₄₈O, [M⁺ 412], [α]_D-46°; ν_{max}^{KBr} cm⁻¹ 3510, 1650, 995, 845 and 800. It responded to all the tests for a sterol. It formed an acetate, m.p. 141-43° and benzoate m.p. 158-60°. The identity of this compound with stigmasterol was established by m.m.p. and co-tlc with an authentic sample.

Compound (D): Elution of the column with petroleum ether : benzene (1 : 3) afforded a white crystalline compound, m.p. 196-98°, C₃₀H₅₀O, [M⁺ 426],

[α]_D+84°. It gave LB tests and Nollers reaction for triterpenoids. IR ν_{max}^{KBr} cm⁻¹ 3200, 1653, 1470, 1000 and 828; acetate, m.p. 237-39° and benzoate, m.p. 233-35°. The identity of the compound was established by m.m.p. and co-tlc with an authentic sample.

Acknowledgement

The authors are thankful to Dr. P. C. Gupta, University of Allahabad, Allahabad for providing the authentic samples and Director, C.D.R.I., Lucknow, for spectroscopy. The authors are also grateful to the U.G.C. (B.C.S.) and C.S.I.R. (S.J.S.) for the award of Junior Research Fellowship.

References

1. J. F. DASTUR, "Medicinal Plants of India and Pakistan", D. B. Taraporevala Sons and Co. Private Ltd., Bombay, p. 77.
2. T. R. GOVINDACHARI, K. NAGRAJAN and B. R. PURI, *J. Sci. Ind. Research*, 1956, 158, 664.
3. F. BOHLMANN, K. M. KLEINE and C. ARNDT, *Chem. Ber.*, 1964, 97, 2125.
4. N. R. KRISHNASWAMI, T. R. SESHADRI and B. R. SHARMA, *Tetrahedron Lett.*, 1966, 35, 4227.
5. K. K. BHARGAVA, N. R. KRISHNASWAMI, T. R. SESHADRI and P. TIRUVENKATA, *Indian J. Chem.*, 1970, 8, 664.
6. K. K. BHARGAVA, N. R. KRISHNASWAMI and T. R. SESHADRI, *Indian J. Chem.*, 1972, 10, 810.
7. S. N. PAL and M. NARASIMHAN, *J. Indian Chem. Soc.*, 1943, 20, 181.
8. H. BUDZIKIEWICZ, C. DJERASSI and H. WILLIAMS, "Mass Spectrometry of Organic Compounds", Holden-Day, Inc., London, 1967, p. 99.
9. I. HEILBRON, H. M. BUNBURY, A. H. COOK and E. R. H. JONES, "Dictionary of Organic Compounds", Eyre and Spottiswoode, London, 1953, Vol. IV, p. 538.

Use of Potassium Bromate : Oxidation of Aldehydes

HARAPRASAD SAMADDAR

Chemistry Department, Ramakrishna Mission Residential
College, Narendrapur, 24-Parganas, West Bengal

and

AMALENDU BANERJEE

Chemistry Department, Jadavpur University,
Calcutta-700 032Manuscript received 2 June 1981, revised 21 December 1982,
accepted 7 June 1982

BENZALDEHYDE was oxidised to benzoic acid with potassium bromate under acidic condition in this laboratory¹. The established optimum condition has been utilised for the oxidation of *o*-, *m*-, *p*-nitrobenzaldehydes, *o*-, *m*-, *p*-chlorobenzaldehydes, *o*-, *m*- and *p*-methoxybenzaldehydes to furnish the corresponding substituted benzoic acids in almost quantitative yield. Only *o*- and *m*-methoxybenzoic acids were found to undergo bromination to some extent during oxidation in acetic acid. This