with $CHCl_3$–MeOH (7:1), R_f 0.15, yield 70%. The synthesized fusarubinoic acid **1a** and its corresponding methyl ester **1b** were identical in all respects to the natural compounds and their derivative (cf. theoretical part for details).

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Phytochemistry, Vol. 27, No. 9, pp. 3004–3005, 1988.
Printed in Great Britain.

0031–9422/88 $3.00 + 0.00
Pergamon Press plc.

4-ETHYLGALLIC ACID FROM TWO *MIMOSA* SPECIES

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(*Revised received* 26 *January* 1988)

Key Word Index—*Mimosa hamata*, *Mimosa rubicaulis* Mimosaceae, flowers, 4-ethylgallic acid.

Abstract—4-Ethylgallic acid has been identified from the flowers of *Mimosa hamata* and *M. rubicaulis*.

INTRODUCTION

The roots and leaves of *Mimosa rubicaulis* are widely used in the treatment of piles, bruises and burns [1]. The leaf extract of *Mimosa hamata* had shown significant antimicrobial and fungistatic activities [2, 3]. From the leaves of *M. hamata*, ethyl gallate and gallic acid have been reported [4]. This paper deals with the isolation and structure determination of 4-ethylgallic acid.

RESULTS AND DISCUSSION

The benzene–ether (9:1) eluate of the flowers afforded silky crystals, mp 233–234° (decomposition), (ether) $C_9H_{10}O_5$, M^+ *m/z* 198 (98.07%). λ_{max}^{MeOH} 218, 268 nm, diacetate mp 169°, (benzene), $C_{13}H_{14}O_7$. The IR spectrum showed strong absorptions at 3500, 1655, 1610 and 1270 cm^{-1} for acidic, hydroxyl, carbonyl and ether linkages, respectively, along with bands for benzene and

ethyl groups [5]. A triplet in the ^{1}H NMR spectrum (60 MHz TFA-d_4) for three methyl protons at δ0.85 and a quartet for two methylene protons at 3.92 of O–CH_2–Me group coupled with the diagnostic peaks at *m/z* 183 (34.61%), 170 (100.00%) and 153 (98.07%) for (M − Me, M − C_2H_4) and (M − OC_2H_5), respectively, in the mass spectrum indicated the presence of an ethoxy moiety in the molecule. The latter fragment may also be assigned to the fragment M−COOH, which is supported by the fragment *m/z* 154 assigned to M–CO [5–7]. Presence of a sharp singlet at 6.85 in its ^{1}H NMR spectrum for two protons corresponds to two aromatic protons indicated the symmetrical nature of the molecule. Acetylation with acetyl chloride gave diacetate as revealed from the ^{1}H NMR spectrum, which showed a sharp singlet for six methyl protons at 2.26 along with other signals indicating the presence of two hydroxyl groups. Since both aromatic and acyl protons gave singlets, the molecule must be symmetrical, i.e. the ethoxy group is at position 4 and hence, the hydroxyls, are assigned 3-and 5-position. Thus the compound is 4-ethylgallic acid.

To the best of our knowledge, this compound is new and is unusual in containing an ethoxy group. Our results conflict with the earlier report [4] of ethyl gallate and gallic acid from this plant.

EXPERIMENTAL

Mp: uncorr. CC was carried out on silica gel (100–120 mesh) and TLC on silica gel G. The fresh pink globular flowers were collected from the nearby area of Ujjain city during the months of March and April and the plant was taxonomically examined by the authorities of School of Studies in Botany, Vikram University.

Isolation and identification of 4-*ethylgallic acid.* The 250 g fresh flowers of *M. hemata* and *M. rubicaulis* were first percolated with petrol followed by Me_2CO at room temp. and the solvent removed under red. pressure to yield dark brown sticky mass (1.5 g). This extract gave a deep blue colour with Denige's reagent and a dirty colour with aq. $FeCl_3$. TLC revealed the presence of one component with a long streak. All attempts to crystallize this residue failed. Hence, it was subjected to silica gel CC. The C_6H_6–Et_2O: (9:1) eluate gave **1**. The compound was crystallized from Et_2O to give silky crystals (200 mg) mp 238–240° (decomp.). Found C, 55.04; H, 4.92% $C_9H_{10}O_5$ requires: C, 54.55; H, 5.05%, NMR (60 MHz, TFA-d_4 TMS), δ: 0.85 (2H, t, *o*–CH_2–Me), 3.92 (2H, *q*, *o*–CH_2Me) and 6.85 (2H, *S*, ArH). MS: *m/z* (rel. int.) 198 (98), 183 (34), 170 (100), 154 (67), 153 (98) and 125 (88)%. Diacetate: globules from C_6H_6 mp 169° ^{1}H NMR 60 MH_2, (Cd_3COCd_3), δ1.36 (3H, t, –O–CH_2–Me), 2.29 (3H, *s*, -O-Co-Me), 4.36 (2H, *q*, –O–CH_2–Me) and 7.72 (2H, *s*, ArH).

Acknowledgement—The authors wish to thank University Grants Commission New Delhi, for the financial assistance, to carry out this work.

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