lead to the development of a vaccine against tuberculosis, if not against leprosy.

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LEAF BLIGHT OF *EUPHORBIA GENICULATA* ORTEG CAUSED BY *HELMINTHOSPORIUM* SPECIES

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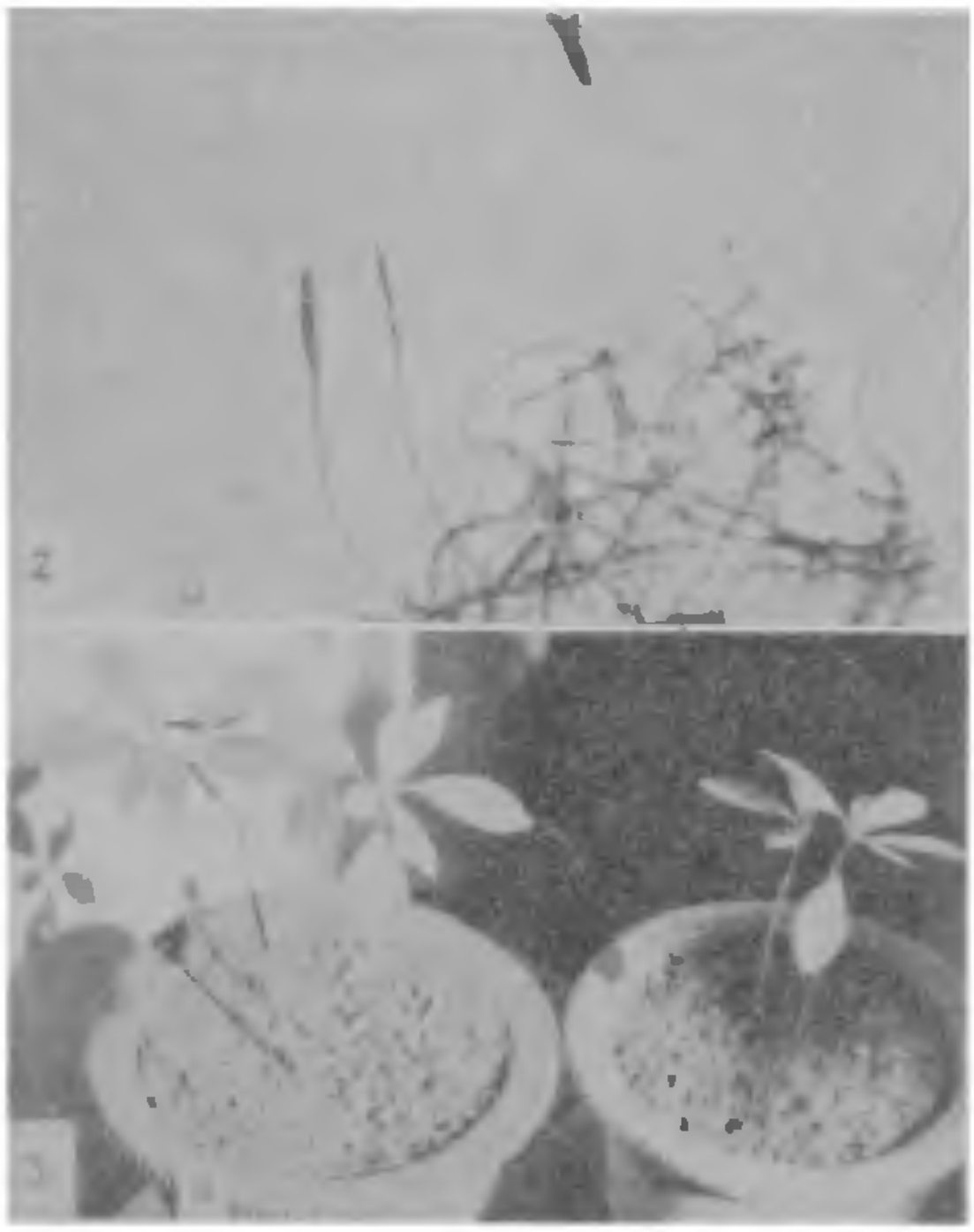
EUPHORBIA GENICULATA Orteg is a common weed. The species of *Helminthosporium* reported[1] so far on *Euphorbia geniculata* are *H. euphorbiacearum* Pat and *H. euphorbiae*. These were subsequently reported by Hansford[2] from Uganda. Rao *et al*[3] reported *H. euphorbiae* from Maharashtra, India. Mitra[4] reported *H. bicolor* on roots of cultivated plants *Triticum vulgare* L. This is the first time that *H. bicolor* is reported on *Euphorbia geniculata* leaves.

The leaf blight caused by the *Helminthosporium* species on this plant was observed in the rainy season of 1984 at the Poona University campus area. The leaf lesions were dark brown in colour on the peripheri with necrotic area in the centre (figure 1). The pathogen was isolated from the infected leaves on a potato-dextrose-agar medium. A single conidial transfer was carried out after the tissue segments were surface sterilized. The development of aerial mycelium was abundant and was dark gray. The mycelium grew till the margin of the petridish producing a large number of spores. The conidiophores bearing conidia were brownish, 3 to 9 septate measuring 314.4 to 349.6 μ in length and 5.3 to 6.1 μ in breadth. Conidia were

Figure 1. Infected symptoms on *Euphorbia geniculata* Orteg leaves.



Figures 2–3. 2. Mycelium showing conidial attachment with conidiophore and biforeed conidium (× 125). **3.** Pathogenicity test showing a. symptoms, b. control.

brownish, straight, rarely curved, frequently bifurcated with abruptly rounded ends, slightly broader in the middle. The average length in a range of 24.7 to 152.0 μ was 78.4 μ. The breadth in a range of 13.4 to 20.9 μ was 16.9 μ and it had 2 to 12 septa (figure 2).

Pathogenicity test was carried out by atomizing conidial suspension on the young leaves of *E. geniculata* Orteg. Typical symptoms developed within a period of 5 to 7 days incubation (figure 3). Re-isolations from the induced lesions established the identity with the original isolate. Control plants remained healthy. Morphological and other diagnostic characters indicated identity of the pathogen as *Helminthosporium bicolor* Mitra[4]. A culture of this fungus has been deposited at the Indian Agricultural Research Institute, New Delhi.

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APIGENIN 5-O-GALACTOSIDE FROM THE ROOTS OF *MELIA AZEDARACH*, LINN

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THE plant *Melia azedarach* Linn (N.O. Meliaceae) has been used in oriental medicine since ancient times, as a very important component in prescriptions for de-obstruent, resolvent, alexipharmic, nervous headache, anthelmic, antilithic, diuretic, rheumatism, leprosy, scrofulla, antiseptic, skin diseases and antimicrobial[1–4]. The isolation and characterization of a new flavone glycoside from the ethanolic extract of the roots of *M. azedarach* is reported here. The glycoside has been assigned the structure apigenin-5-O-β-D-galactopyranoside on the basis of spectral and chemical evidence.

The air dried and powdered roots of *M. azedarach* (5 kg) were extracted five times with rectified spirit (40 l) and the extract concentrated under reduced pressure to 400 ml and then poured into 800 ml of distilled water. The water insoluble fraction was filtered and the filtrate was concentrated and then extracted with organic solvents in the increasing order of their polarities. Ethyl acetate extract gave a glycoside which after purification by chromatography (SiO_2) yielded 1.5 g of a reddish yellow crystalline product (EtOH: pet.ether), [m.p. 148–50°] which was found to be a single entity (PC; R_f 0.92, BAW 4:1:5 and TLC; R_f 0.85, MeOH: $CHCl_3$, 5:5 and 0.77, MeOH: $CHCl_3$ 4:6); IR ν_{max}^{KBr} 825, 1020, 1120, 1170, 1280, 1350, 1465, 1510, 1640, 1610 and 3440 (br)cm^{-1}; UV[5] λ max; + MeOH, 268, 335; + $AlCl_3$, 270, 335; (Found; C, 58.28; H, 4.59; $C_{21}H_{20}O_{10}$ required C, 58.33; H, 4.62%).

The glycoside (500 mg) on hydrolysis with H_2SO_4 (50 ml, 7%) gave D-galactose (R_f 0.16, BAW, 4:1:5 and Co-PC) and an aglycone which was recovered as usual and crystallized from ethanol: pet. ether as yellow needles, m.p. 347–48°. This product gave positive test for Shinoda reaction; produced red colour with Mg-HCl; IR ν_{max}^{KBr}, 1020, 1120, 1280, 1360, 1460, 1500, 1600, 1640, 1615 and 3440 (br) cm^{-1}; UV λ max; + MeOH, 268, 336; + NaOMe, 275, 324, 392; + $AlCl_3$, 276, 345, 380 and + H_3BO_3-NaOMe, 260, 335 nm; MS[6] at m/e270 (M^+), 242 (M^+-CO), 118 (M^+-$C_7H_4O_4$), 90 (M^+-$C_7H_4O_4$ + CO), 149 (M^+-$C_7H_5O_2$) and 152 M^+-C_8H_6O), (Found; C, 66.59; H, 3.69; $C_{15}H_{10}O_5$ required; C, 66.66; H, 3.70%). It formed a tri-acetate (Ac_2O/py)[7], m.p. 181–82° (lit. m.p. 181–82°), (Found; C, 63.10; H, 4.00; 3 × OAc, 32.60; $C_{21}H_{16}O_8$ required; C, 63.63; H, 4.04; 3 × OAc, 32.57%) and trimethyl ether (Me_2SO_4/K_2CO_3)[7], m.p. 155–56° (lit. m.p. 156°), (Found; C, 69.19; H, 5.09; 3 × OMe, 29.75; $C_{18}H_{16}O_5$ required; C, 69.23; H, 5.12; 3 × OMe, 29.80%). 50% KOH degradation[8] of the aglycone (100 mg) yielded phloroglucinol, m.p. 212–13° (lit. m p. 214°; mmp and Co-TLC) and *p*-hydroxy benzoic acid, m.p. 216–17° (lit. m.p. 217°, mmp and Co-TLC) while $KMnO_4$ oxidation afforded *p*-hydroxy benzoic acid (mmp and Co-TLC) as one of oxidation products. Hence the aglycone was assigned as apigenin[6] which was finally confirmed with an authentic sample of apigenin (lit. m.p. 347–48°, mmp and Co-TLC).

Periodate oxidation[9] showed the consumption of 2.00 moles of periodate with the liberation of 1.00 mol of formic acid per mol of the glycoside suggesting the presence of only one moiety of galactose in pyranose form. Since there are three OH groups in aglycone, the sugar can be linked to any one of them. Assignment of