

SHORT SCIENTIFIC NOTES

Occurrence of Vitexin in *Jatropha heterophylla*

Jatropha heterophylla Heyne (Euphorbiaceae) is a small low glabrous shrub branching from a tuberous root stock with greenish flowers¹. Jatrophone², a diterpenoid isolated from *J. gossypifolia* and jatropham³, a lactone isolated from *J. macrorhiza*, were found to possess antitumour activity. Terpenoids, sterols, flavonoids, alkaloids and carbohydrates were reported from various species of *Jatropha*. We present here the results of our chemical investigation of *J. heterophylla*.

The aerial parts of *J. heterophylla* were powdered and extracted successively with petroleum ether, benzene, chloroform and methanol. Chromatography of the petroleum ether extract residue over silica gel yielded β -sitosterol, besides some long chain alcohols and esters.

The methanolic extract showed positive Shinoda test indicating the presence of flavonoids. It was concentrated under reduced pressure and the aqueous concentrate thus obtained was fractionated into ether, ethyl acetate and *n*-butanol fractions. The ethyl acetate fraction on concentration yielded a yellow flavonoid, m.p. 254–55°. It analysed for the formula C₂₁H₂₀O₁₀ and formed a hepta acetate, m.p. 257–59°. It did not hydrolyse with 2 N HCl but underwent isomerisation. With concentrated HCl hydrolysis took place and the sugar residue was identified as glucose by paper chromatography. Thus it was shown to be a flavonoid C-glucoside. The U.V. spectrum of the glycoside had λ_{max} at 270, 302 (sh) and 335 nm in methanol shifting to 280 and 380 nm with NaOAc, with AlCl₃ to 278, 305 and 386 nm and with NaOEt to 279, 329 and 395 nm. From these properties⁴ the compound was identified as vitexin and it was confirmed by Co-PC with an authentic sample of vitexin.

The *n*-butanol fraction showed the presence of vitexin and isovitexin in PC.

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Fossils from Lower Gondwana Formation of Singrimar

C. S. Fox was the first to discover the Gondwana formation in Singrimari (89° 53' 30" E : 25° 38' 35" N) area. On the basis of *Vertebaria indica*, he assigned the formation as Lower Gondwana age in 1935. Four decades after Fox's report, interest on the Lower Gondwana exposure revived, when Gondwana coal was touched in a deep bore hole under the alluvium in Bogra District of Bangladesh. It is presumed that Singrimari exposure is the eastern extension of the Gondwana Group and is separated from its western counterpart by Garo-Rajmahal trough fault¹.

Recent fieldwork by this directorate, in the area, reveals that the Lower Gondwana exposure is confined to an area of 2 sq. km. Besides *Vertebaria indica* discovered by Fox, fossils recently collected are *Schizoneura* sp., *Gangamopteris* sp., *Glossopteris* sp., *Sphenophyllum* sp. and parts of an invertebrate possibly belonging to Arachnida. Lenticles of coal samples collected from the area analysed as in Table I.

TABLE I

	Singrimari coal Air dried basis (%)	Average of Lower Gondwana coal of Bihar and Bengal (%)
Moisture	3.3	1.0
Ash	12.7	13.0
V.M.	18.5	22.0
F.C	65.5	64.7
S	0.7	0.3
Calorific value 6940 KCal/Kg		8,400 KCal/Kg

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Directorate of Geology and Mining,
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Three Additional Hosts of the Stubby-Root Nematode, *Trichodorus mirzai* Siddiqi, 1960

Moderate to heavy galling was noticed in the roots of *Commelina nudiflora* L., *Eclipta alba* (L.) Hassk. and *Setaria verticillata* (L.) Beauv. growing as weeds in the Aligarh Muslim University Campus. The galls were terminal in position and elongated in shape. The growth of the apical meristem was checked. These are characteristic features for the infection of stubby-root nematodes. The soil around the roots of these plants was isolated and studied for nematodes. It was observed that the soil was heavily infested with *Trichodorus mirzai* Siddiqi, 1960. Whereas the soil from ungalled plants either did not contain this nematode species or, in some cases, negligible numbers were detected. A perusal of literature^{1,2} revealed that these plants are new hosts of *T. mirzai*.

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Cladosporium Leaf Spot of Sunflower

During October-November 1973, a leaf spot disease of sunflower was noticed around Bangalore. The disease is characterized by greyish circular spots surrounded by a zone of yellow halo. In the initial stages, chlorotic spots appear which, later, turn grey to olive green. The undersurface of the affected part gives a moldy appearance. In severe cases, under high humidity, the spots elongate along the veins resulting in extensive chlorotic patches. The upper half of the leaf usually suffers more damage than the lower half of the leaf.

Isolations from the affected regions consistently yielded a *Cladosporium* sp. When sunflower plants were spray inoculated with spore suspension, from one week old culture of this organism, typical

symptoms appeared after 4 days. The pathogen was reisolated from such artificially inoculated plants.

The pathogen produces an olive-green growth on PDA, which turns dark with the advance age of time. Colony is woolly at earlier stage and becomes powdery later with the production of conidia. Reverse of the colony is greenish-black. Hyaline hypha is not very conspicuous. Dark hyphae measure 4–11 μ in width. Conidiophores arise laterally or less often terminally from the hyphae, are unbranched, and measure 30–420 \times 2.5–5.4 μ . They are smooth, irregularly septate, not constricted at the septa, and darker and more uniform than the regular hypha. Conidia are produced acropetally in long chains at the tip of the conidiophore and its 3–4 lateral outgrowths. Conidia are smooth, pale brown, mostly 1-celled, ovate or elliptical and slightly tapering at one or both the ends; many cylindrical and often 2–3 celled, mostly towards the bottom of the chain, with one or more hila. Young conidia are almost round in shape. The conidia measure 2.5–12 \times 2.5–4 μ .

The pathogen has been identified as *Cladosporium cladosporoides* (Fres.) De Vries¹. There is no record of this pathogen on sunflower from anywhere. The culture has been deposited in the culture collections of the Department of Plant Pathology, U.A.S., Bangalore, bearing accession No. 102.

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Stem Blight of *Asparagus officinalis* Caused by *Phomopsis asparagi* (Sacc.) Bubak

A severe attack of stem blight disease of *Asparagus officinalis* was observed at Hesaraghatta (Bangalore) during the month of January, 1975. It attacked fully grown plants and resulted in their death. The symptoms appeared as a discolouration of the tissues of the stem changing gradually into light brownish areas which became dark brown as the disease advanced. The spots were spindle-shaped initially and were surrounded by deep brown borders. These were more noticeable on the main stems near the ground level but sometimes also appeared on any other part of the stem. In certain