

terahedrally surrounded by four oxygen ions. The combination of these polyhedra results in an orthorhombic unit cell.

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### A HIGH ALKALOID CONTAINING RACE OF *SOLANUM INCANUM* LINN., COLLECTED FROM THE PANIYAS OF KERALA

THE importance of the genus *Solanum* as a source of intermediates in the synthesis of cortisone has resulted in a search for high alkaloid containing Indian species of this genus. Amongst these *Solanum khasianum* with 5% and *Solanum elaeagnifolium* with 3% glyco-alkaloid have been reported by Maiti *et al.* (1964)<sup>1</sup> and *Solanum trilobatum* with 3.5% by Viswanathan (1973)<sup>2</sup>.

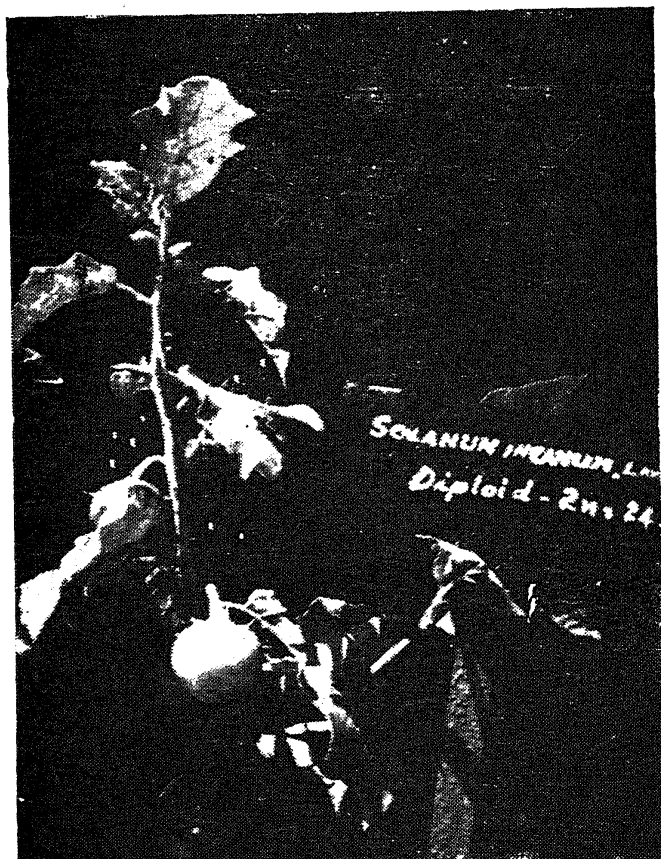


FIG. 1. A *Solanum incanum* Linn. plant from the Paniyas of Kerala with white fruits. Chro. No.  $2n = 24$ .

*Solanum incanum* Linn., a species closely related to *Solanum melongena*, Linn., the brinjal, with which it hybridizes easily is found wild throughout India. Several geographical races showing morphological differences exist in this species. Zutshi (1968)<sup>3</sup> reported 1.85% Solasodine in the Jammu variety and 2.2% in a race collected by the senior author from Kondotti, South Kerala. We collected 4 races from Kerala of which one was derived from a single fruit given by Valli Moopan, the Paniya Headman of Iritty, North Kerala, who said it was used as an oral contraceptive by the women of his tribe. The Paniyas are an aboriginal Tribe who lived on roots collected from the forest. They were famous for tiger hunting by spears as some of the African Tribes with whom they show some affinity.

Seeds of this "Paniya" variety of *Solanum incanum* were grown at the Ethno-botanical garden of the Field Research Laboratory, University of Madras. A uniform population of plants with white fruits was obtained. This character has not so far been observed in any variety of *Solanum incanum* collected by us, all of which had green fruits.

On chemical analysis of well-matured ripening fruits, this variety was found to contain 3.8 to 4.81% glyco-alkaloid which is the highest record for this species of *Solanum*.

*Solanum incanum* is as easy to cultivate as the brinjal. It yields 60–70 fruits per plant and it can easily replace *Solanum khasianum* as a source of glyco-alkaloid for commercial growing.

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### A MEGA-PORPHYRITIC DOLERITE INTRUSION AT SAN PEDRO, GOA

THIS note describes an occurrence of a megaporphyritic dolerite intrusion at San Pedro in a road metal quarry on the south bank of the Mandovi river near Km 7/2 on the Panjim-Ponda road. Micaceous quartzite is the dominant rock type along the northern coast of Goa. These unfossiliferous pre-Cambrian metasediments of Cuddapah age (Oertel, 1958) are profusely intruded by basic dykes and are covered by a laterite capping of

variable thickness. The megaporphyritic dolerite body is an inverted saucer-shaped intrusion and the overlying quartzites show doming and fracturing hence referred to as laccolith. The contacts are sharp and do not show much baking effects. Large phenocrysts are irregularly and sparsely strewn in the body of the intrusion. Similar unusual type of basalt containing very large phenocrysts of plagioclase has been reported by Agashe and Gupte (1968) in the Deccan Trap basalts and also by Sowani and Peshwa (1964), from Purandar hills.

#### PETROGRAPHY

The rock consists of medium grained, greyish black doleritic groundmass with plagioclase phenocrysts. Many of the phenocrysts are exceptionally large (40 to 50 mm) and show a tendency to form glomeroporphyritic aggregates and make the rock a good example of porphyritic dolerite. The phenocrysts vary considerably in habit and size and in some cases the crystal faces are irregular. Some of the phenocrysts have a dusky brown interior and occasionally show criss-crossing of the groundmass within the crystals.

In thin sections the medium to coarse grained groundmass varies in texture from subophitic to doleritic. It is composed of plagioclase and ferromagnesian minerals in approximately equal amounts (Table I) or with an excess of feldspar. Groundmass plagioclase laths are randomly oriented and exhibit albite, carlsbad, albitecarlsbad and pericline twinning. They are altered to aggregates of calcite, epidote, clino-zoisite or zoisite and scattered flecks of white mica (sericite?). Pyroxenes (augite)

purplish brown in colour show faint pleochroism and have distinct cleavages. The colour suggests that it holds some titanium. Twinning with (100) as the twin plane is observed but it is not common. The pyroxene is affected by deuteritic or hydrothermal alteration and altered in varying amounts to fibrous light coloured bluish green amphibole (uralite). Some hornblende and biotite have been decomposed to form aggregates of fine grained magnetite. Twinning in the plagioclase megaphenocrysts is not clear due to deuteritic or later weathering alteration. Fresh parts of the crystals are colourless while altered portions show pale brown colour with greenish tinge. The crystal boundaries against the groundmass are generally irregular but in some crystals one or two margins remain straight. Groundmass has also crystallized in embayments and in cracks in the crystals. The occurrence of orange-tinged, thin cracks in the mineral, suggests iron migration perhaps due to weathering. Plagioclase phenocrysts are comparatively altered more than those in groundmass but the alteration product is the same. Quartz grains are found interstitial between feldspars and pyroxenes. Iron ore is seen throughout the sections as square, triangular, lath-shaped or irregular skeletal crystals and sometimes is enclosed in late minerals such as hornblende and biotite. Apatite needles are present in plagioclase and near the biotite-magnetite association.

The phenocrysts show a tendency to form glomeroporphyritic aggregates and most of them have corroded borders indicating their intratelluric formation and resorption during the process of

TABLE I

Percentage by volume of the constituents of the groundmass (exclusive of the phenocrysts)

Sample No.	Plagioclase	Pyroxene	Uralite	Opaque minerals	Biotite	Quartz
SK-1	51.67	6.68	25.44	12.52	2.03	1.67
SK-2	53.86	13.73	22.04	6.17	1.32	2.88
SK-3	54.32	12.49	24.33	5.45	1.96	1.45
SK-5	50.62	20.73	15.43	8.26	2.68	2.27
SK-6	54.33	10.22	24.92	5.42	2.32	2.79
SK-8	51.21	25.32	11.09	8.68	1.21	2.49
SK-9	38.67	39.99	7.07	9.79	1.79	2.72
SK-10	48.32	29.92	7.90	9.34	3.24	1.26
SK-17	58.11	9.60	20.26	7.77	1.83	2.44
SK-18	55.78	17.75	17.83	7.04	0.61	0.99

eruption (Crookshank, 1936; Prasad, 1959). The presence of unusually large plagioclase phenocrysts poses certain problems regarding their history of formation. The mega-phenocrysts are early formed crystals of uniform composition characteristic of crystallization in slow cooling magma at depth. Their presence in a rock of doleritic texture shows that the magma in which they were included moved to higher levels where crystallization was more rapid.

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#### PHENOXETOL A AS GOOD SORTING MEDIUM-CUM-PRESERVATIVE FOR ZOOPLANKTON IN THE TROPICS

ZOOPLANKTON samples collected during the International Indian Ocean Expedition (1960-65) and stored in the Indian Ocean Biological Centre were found to deteriorate progressively. Results of an analysis<sup>1</sup> of causative factors showed that bacterial action of the specimens partly caused by the sorting procedure may also be a cause. Hence of the need to find a sorting medium-cum-preservative (as part of the SCOR/UNESCO/WG-23 programmes) for the proper fixation and preservation of zooplankton.

Berry<sup>2</sup> reported the bacteriostatic and bactericidal value of ethylene glycol monophenyl ether. Rankin<sup>3,4</sup> used phenoxetol for treating fin rot in fishes. This was found active against penicillin resistant gram negative organisms. Use of propylene phenoxetol as a relaxing agent, as a preservative for a variety of animals and for preserving aqueous stains has been reported (Owen<sup>5</sup>; Owen and Steedman<sup>6,7</sup> and Turner<sup>8</sup>). Bagenal<sup>9</sup> and Rosewater<sup>10</sup> used propylene phenoxetol as an anaesthetic agent for fishes and molluscs.

Glycol monophenyl ether being referred to as phenoxetol is a colourless viscous liquid with a pleasant smell, soluble in water to about 2.5% v/v. This solution is perfectly stable with the pH around 5.5 to 6.0. Since it has no ionising groups, the pH of the water in which it is dissolved is unchanged and it has no buffering action of its own. A raised pH, however, can be obtained by adding the usual buffering agents. Though sea water has no chemical effect on phenoxetol owing to the salting out effect, distilled water was used for dilution. Normally phenoxetol is added to boiling distilled water, shaken until dissolved, cooled and adjusted to volume.

Initially 0.5% phenoxetol (B-phenoxyethyl alcohol or ethylene glycol monophenylether) or 0.5% propylene phenoxetol (3-phenoxypropanol) was tested as a sorting medium for subsampling and open dish sorting of zooplankton. A few drops of B.D.H. universal indicator whose pH range extended from 3 to 11 was also added to indicate the pH of the sorting medium. In general this was not found to have any damaging effect on the sorted plankton. During sorting more and more preservative was added to nullify the effect of evaporation. Examination of condition of these sorted taxa revealed no deterioration.

Being satisfied with its merit as a sorting medium, its use as a preservative was then tested. Zooplankton, fixed in 2% sea water-formaldehyde for ten days, was drained and after a quick rinse in distilled water, was transferred to a test series of different media. The two chemicals in different concentrations in different diluents were used (Table I). The table also gives the various buffers used for neutralising the medium. Different additives for improving the condition of the specimens were also added to each of the preservatives in the experimental series.

The condition of the specimens were recorded for the last four years with emphasis on morphological features of taxonomic importance. The results indicate that distilled water solution was better than tap water and sea water. All four strengths of solutions used gave equally good results. However, 0.5% solution may be considered advantageous for proper preservation since it requires less quantity of chemical. The preservation was satisfactory in that retention of colour and pigmentation was good; specimens remained soft and flexible. Incidence of transparency of cuticular forms indicating a decay of tissue was negligible. Gelatinous plankters had their morphological features mostly retained. Calcareous plankton was well preserved in 3-5% potassium