

Shade-dried leaves of *C. serratum* (L.) Moon (Family: Verbenaceae) were exhaustively extracted with 80% ethanol. The extract after concentration was partitioned using light petroleum, ether and ethyl acetate. The light petroleum soluble portion yielded α -spinasterol as the only crystalline component as reported earlier⁶. No crystalline compound could be isolated from the ether extract; the EtOAc fraction gave a minute quantity of a flavone glycoside which on acid hydrolysis yielded 6-hydroxy luteolin and glucose. This glucoside could not be fully characterised owing to the paucity of the material.

The aqueous portion left after the EtOAc extraction was hydrolysed with 2N HCl for 2 hrs. The residue from the ether extract of the hydrolysate was found to be a mixture of flavones and phenolic acids (PC) which was separated by preparative PC using first 50% and then 15% HOAc as the developing solvents. The individual components were then subjected to colour reactions, UV fluorescence, R_f determination and UV absorption maximum. The flavones were identified as apigenin and luteolin (common flavones), baicalein, scutellarein and 6-hydroxy luteolin (uncommon 6-oxygenated flavones), while the phenolic acids were characterised as caffeic and ferulic acids. The identity of all the compounds was finally confirmed by co-PC with authentic samples using a number of developing solvents. The sugar was found to be a mixture of glucose, arabinose and glucuronic acid and hence no characterisation of the individual glycoside could be made.

Our identification of the flavones and phenolic acids from *C. serratum* is in general agreement with the flavonoid pattern of the Verbenaceae and *Clerodendrum* in particular. However, the sterol of molecular taxonomic significance (24S-ethyl cholesta-5, 22, 25-trien-3 β -ol) of this genus identified in all other species examined earlier^{3,7} was found to be absent in *C. serratum* casting a doubt on the reliability of this compound as a dependable chemotaxonomic marker. Recent anatomical studies on this plant by one of us⁸ revealed that *C. serratum* differs markedly from the other members of the genus in the histology of root and leaf suggesting placement of this plant out of the genus *Clerodendrum* thus retaining the importance of the sterol as the taxonomic marker.

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N₂O DECOMPOSITION ON La₂TiMO₆ (M = Ni, Cu AND Zn)

THE compounds La₂TiMO₆ where M = any one of Ni, Cu, Zn and Co have been shown to possess interesting physico-chemical properties by Ramadass *et al.*¹. The catalytic activity of the first three compounds of the above series has been determined with N₂O decomposition as the test reaction. The experimental procedures for the kinetic study were the same as those used by Vijayakumar and Swamy² excepting that the temperature of activation was 500°C. The catalysts were pretreated with oxygen before any reaction in order to avoid correction for dead time.

The reaction has been studied in the temperature range 330–490°C. The effect of initial pressure on the kinetics of N₂O decomposition has been very well portrayed on La₂TiCuO₆. At 50 torr initial pressure, the rate of decomposition is first order with respect to the partial pressure of N₂O whereas at 200 torr, the reaction is strongly inhibited by product oxygen. The kinetic parameters have been evaluated using the equations suggested by Cimino *et al.*³. Inhibition by oxygen has been confirmed⁴ by conducting reactions with N₂O + O₂ mixture instead of N₂O alone when the rate of the reaction decreased accompanied by an increase in the energy of activation.

On La₂TiNiO₆, strong inhibition by oxygen is observed even at 100 torr initial pressure of N₂O. Equilibrium adsorption measurements indicated that oxygen is adsorbed in an activated form. In the absence of compensation effect, the activity order has been found to be La₂TiNiO₆ > La₂TiCuO₆ > La₂TiZnO₆ as seen from the energy of activation values (E_a) for 200 torr reactions.

Inverse linear relationship has been found between E_a for 200 torr reactions and (i) E_a for electrical conduction and (ii) magnetic moment. The first of these indicates that the rate determining step (oxygen desorption in this case) involves charge

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transfer. The second correlation indicates that the reaction is fastest on $\text{La}_2\text{TiNiO}_6$ which has the highest magnetic moment. This is oxygen desorption step involves the decoupling of the spins of O^- ions which will be facile on catalysts with high magnetic moment.

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VENTRAL FIN LENGTH AS A SEXUALLY DIMORPHIC CHARACTER IN THE MURREL, *CHANNA PUNCTATA* (BLOCH, 1793)

SEXUAL dimorphism has been reported in *Channa punctata* (Dehadrai *et al.*¹). During the breeding season, males have pin-head black spots and females diffuse blotches on the ventral surface. In a series of 2,400 specimens examined over a period of two years, this does not appear to be a useful character distinguishing the two sexes. Instead, the ventral fins exhibit sexual dimorphism in the adults of *Channa punctata* from Guntur.

The present study shows that the ventrals originate at, slightly in front of, or slightly behind the dorsal, their posterior ends show considerable variation; in adult females they never reach the vent while in males they generally extend to the vent or a little beyond the vent. Thus the ventral fins are relatively longer in males than in females. When ventral fin length is expressed as percentage of the distance between base of ventrals and the vent, in specimens below 130 mm TL (120 mm TL is the minimum size at maturity in *C. punctata* from Guntur) there is no marked difference between the sexes, but specimens above 130 mm TL show a marked difference. In males the percentage ranges from 90.00 to 106.25 (mean = 97.91; number of specimens used = 75) and in females it ranges from 70.00 to 94.73 (mean 85.74; number of specimens used = 80). The lowest values in males and highest values in females are observed in the length range 130 to 150 mm. The difference between the sexes is more marked in specimens above 150 mm.

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SCYTHIAN OSTRACODES FROM KHUNAMUH FORMATION, KHREUH, KASHMIR HIMALAYAS

THIS note records for the first time the occurrence of ostracodes from limestone samples collected from the Khunamuh Formation¹ of Scythian age at Khreuh (34° 01' : 75° 04'), 20 km southeast of Srinagar, Kashmir Himalayas.

Although the global occurrence of Triassic ostracodes is rare, they occur in considerable numbers in most of the samples studied by the author from Khreuh. The ostracodes were recovered from limestone samples treated by acetic acid for the recovery of conodonts. They have tentatively been identified, mostly on the basis of external characters, as *Bairdia*, *Monoceratina*, *Judahella*, *Hungarella*, *Cytherella* and *Paracypris*. The fauna appears to be well differentiated and taxonomically diversified. With the exception of *Judahella*, which is restricted to the Triassic rocks only, the other long ranging forms are significant only from the point of view of palaeoecology.

Nakazawa *et al.*¹ have referred a sequence comprising mainly of alternating limestones and shales, of latest Permian through Lower Triassic, at Guryul Ravine (34° 04' 43" : 74° 57' 30"), in Kashmir, to the Kunamuh Formation named after a nearby village. It conformably overlies the Zewan Formation of Upper Permian age with an abrupt lithological change. The Khunamuh Formation extends to Khreuh section.

Seventeen successive samples were taken for microfaunal study from the Khunamuh Formation, comprising 50 metres thick grey limestone and 35 metres thick alternating limestone and shale, at Khreuh. These beds have been assigned Scythian age by Chhabra² on the basis of dominance of conodont species *Neogondolella jubata* and *Neospathodus homeri*. It is significant to note that at the boundaries of the grey limestone and the alternating limestone and shale, as well as between the latter, marking the top of the Khunamuh Formation, and the overlying Nodular limestone, the samples show a marked decline in the ostracodes and a sudden increase in the frequency of microgastropods, micropelecypods and fish teeth, scales and spines, indicating thereby a change in palaeoecological conditions in the area.