

H₂S that is formed or being formed". It is evident therefore that since the bacterial presence or absence in the sample is related to the amount of H₂S generated, the method will also cease to be of any assistance in estimating the sulphate-reducing bacteria in water samples.

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NOTE ON MORE ADDITIONS TO THE NATURAL ENEMY COMPLEX OF *SPODOPTERA LITURA* F. AND *MYZUS PERSICAE* SULZ. ON TOBACCO IN ANDHRA PRADESH.

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A SURVEY of natural enemies of *Spodoptera litura* F. and *Myzus persicae* Sulz. the two important pests of tobacco was carried out in the tobacco growing areas of Andhra Pradesh. Information on the indigenous natural enemies is essential for augmentation of biological control either by the promising indigenous ones or the exotic natural enemies imported for the purpose. Earlier workers^{1,2} reported the natural enemies of *S. litura* and *M. persicae* from this area. In the present investigations some more parasites and predators are recorded on these two important pests. They are as follows.

<i>Name of the parasite/ predator</i>	<i>Stage of the host</i>
I. <i>S. litura</i> F.	
A. <i>parasites</i>	
i) <i>Zele chlorophthalma</i> Nees (Hymenoptera—Braconidae)	Larval
ii) <i>Brachymeria lasus</i> Walker (Hymenoptera—Chalcididae)	Pupal
iii) <i>Lesiochalcidia? erythropoda</i> Cameron (Hymenoptera—Chalcididae)	Pupal
iv) <i>Chelonus carbonator</i> Marshall (Hymenoptera—Braconidae)	Egg-larval
B. <i>Predators</i>	
i) <i>Rhinocoris squalis</i> (Disk.) (Heteroptera—Reduviidae)	Predaceous on larval stage
ii) <i>Chrysopa crassinervis</i> Esben Peterson (Neuroptera—Chrysopidae)	Predatory on eggs and larvae.
II. <i>M. persicae</i> Sulz.	
A. <i>Parasites</i>	
i) <i>Aphelinus</i> sp. (Hymenoptera—Aphelinidae)	
ii) <i>Aphidencyrthus aphidivorous</i> Mayr (Hymenoptera—Encyrtidae)	
iii) <i>Liocyrtus aphidivorous</i> Shafee (Hymenoptera—Encyrtidae)	
B. <i>Predator</i>	
i) <i>Anisochrysa boninensis</i> Okamoto. (Neuroptera—Chrysopidae)	Predaceous on nymphs and adults

Zele chlorophthalma was earlier recorded by Kamal³ in Egypt on *Prodenia litura*. But this is the first record in India on this pest. Narendran and Joseph⁴ compared the parasitisation of *Brachymeria lasus* Walker on *Plusia peponis* and *S. litura* under laboratory conditions. Whereas the present record happens to be the first in India under natural field conditions. *Lesiochalcidia? erythropoda*, *Anisochrysa boninensis* and *Tetrastichus* sp also happen to be first time records on the respective hosts.

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AMTASPORA, A NEW PTERIDOPHYTIC SPORE GENUS RECOVERED FROM THE SUBATHU FORMATION OF HIMACHAL PRADESH

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DURING the course of palynological investigations of the Palaeogene sediments of Banethi-Bagthan area of Sirmur district, Himachal Pradesh, the present authors recovered a large number of specimens of trilete miospores from the upper horizons of Subathu Formation (Upper Eocene) exposed along the Amta-Surla bridle path leading to the village of Banethi. The miospores referred to the newly established spore genus *Amtaspora* and consisting of two new species viz *A. pseudostriata* and *A. Indica* are distinctive and morphologically different from the known spore genera. In morphological characters *Amtaspora* has thin and raised y-rays together with apparently striated exine. A detailed morphological study of the specimens reveals that the pseudostriations are formed due to aggregation and virtual merger of the small-sized grana spread all over the surface. The exine appears to be differentially thickened in close proximity to the haptotypic mark where the placement of grana is rather sparser.

Amtaspora represented by *A. pseudostriata* and *A. indica* is an important constituent of the *Todisporites* spp. Cenozone which identifies the upper part of Subathu Formation. It is usually associated with the greyish-to-purple shale horizon of the Subathu Formation.

The type material and the slides are housed at the Birbal Sahni Institute of Palaeobotany, Museum, Lucknow.

Amtaspora Gen. nov.

Type species – *Amtaspora pseudostriata* sp. nov.

Generic diagnosis – Miospores triangular to subtriangular in shape, interapical margin straight to convex,

apices broadly rounded. Trilete, laesurae thin and raised, extending more than 2/3 of the spore radius. Exine 3 μ m thick, granulose, grana beset closely appearing as pseudostriations in surface view, exine thickened along the trilete mark.

Generic description – Miospores tetrahedral, triangular to subtriangular in compressed state, interapical sides straight to convex, apices broadly rounded. Trilete mark distinct, y-rays open or closed, laesurae thin, equal, slightly raised extending more than 2/3 of the spore radius. Exine 1.5 to 3 μ m thick, thicker along the trilete mark, granulose in ornamentation, grana very small in size and closely placed, forming a pseudostriate pattern.

Comparison – *Granulatisporites* (Ibrahim) Potonié and Kremp⁴ closely resembles the present genus in having similar shape and granulose exine. *Amtaspora* is, however, distinguished by its thickening along the trilete mark and in having a distinct pattern of pseudostriations formed by \pm amalgamation of granulose ornamentation. A trilete granulose form described by Franke² possesses subcircular to circular amb and lacks pseudostriations and hence it is not comparable.

Osmundacidites Couper¹ possesses granulopapillose ornamentation and circular to subcircular amb and hence it does not compare with *Amtaspora*. *Scantigranulites* Kar³ can be distinguished by its distinctly separated and sparsely distributed grana all over the surface, numbering ± 75 on the perimeter whereas in the case of *Amtaspora* grana are small, generally fused and simulate a pattern of pseudostriations in surface view. Because of the very close disposition of the grana and their virtual fusion in *Amtaspora*, it is difficult to determine their exact number of the perimeter. Evidently the distinct aggregation at the ornamentation of *Amtaspora* assumes a qualitative dimension which separates it from *Scantigranulites*.

Amtaspora pseudostriata sp. nov.

Holotype – Figure 1, Size 50 \times 60 μ m, Regd. slide No. 6861, Coordinates 20.4 \times 110.5. Birbal Sahni Institute of Palaeobotany, Lucknow.

Type Locality – Jhimroti, Subathu Formation, Himachal Pradesh, India.

Diagnosis – Miospores subtriangular, interapical margin convex, size range 55 to 65 μ m. Trilete, laesurae raised, extending upto 2/3 of the spore radius.