

and will form the subject of a detailed communication elsewhere.

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1. Barnes, D. J., and Carpenter, M. D. *J. Polist.*, 1937, **10**, 596. 2. Behrendt, H., *Proc. Soc. Exp. Biol. Med.*, 1943, **54**, 288. 3. Podansky, *Ibid.*, 1939, **42**, 800. 4. Dikshit, P. D. and Patwardhan, V. N., *Ind. Jour. Med. Res.*, 1946, **34**, Oct. 1946. 5. Roche, J. and Bullinger, E., *Enzymol.* 1939, **7**, 278, quoted from *Chem. Physiol. Ab.*, 1940, **A3**, 349.

NIOBOTARTARIC ACID

It is known that freshly precipitated niobic and tantalic acids dissolve in solutions of organic acids like oxalic, tartaric, etc., resulting in the formation of complexes. The oxalate-complexes have been investigated by Russ,¹ who also prepared a number of alkali nioboxalates. Edmister and Albritton² have furnished evidence for the formation of a complex of niobium with tartaric acid and also have reported a tartracolumbic acid; but its structure has not been confirmed and its salts have not been prepared. It was, therefore, proposed to study the complexes of niobium and tantalum with organic acids in greater detail.

Freshly precipitated niobic acid prepared from specially purified niobium pentoxide, was dissolved in hot aqueous tartaric acid. After filtering off undissolved niobic acid, the clear solution was concentrated and the niobotartaric acid crystallised with the addition of alcohol. The crystals were washed with dil. alcohol, dried and analysed. Niobium was determined by precipitating it from a solution of the sample and subsequent ignition and weighing as Nb_2O_5 . Tartaric acid was estimated by the Goldenberg method.³ The crystals were also titrated with standard alkali using phenolphthalene as indicator. The results of the analysis bear out the meta composition, i.e., $Nb_2O_5 : 2(C_4H_4O_6)$ for the niobotartaric acid formed. The sodium salt of this acid was also prepared by treating various sodiumniobates with tartaric acid. Further work on the complex acid and its structure is in progress by application of physical methods.

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1. Russ., *Z. anorg. Chem.*, 1902, **31**, 12. 2. Edmister and Albritton, *J. Amer. Chem. Soc.*, 1932, **54**, 438. 3. Goldenberg., *Z. anal. Chem.*, 1906, **47**, 51.

A NOTE ON THE OCCURRENCE OF THE MITE-PARATETRANYCHUS INDICUS H. ON JOWAR (ANDROPOGON SORGHUM) AND ITS PREDATORS IN MYSORE

In the issue of *Current Science*, No. 7, July 1946, pp. 186-87, Haroon Khan, M., and Bhatia, S. C., have recorded the occurrence of the mite *Paratetranychus indicus* H., and its effective predator *Seymnus gracialis* M., on sugarcane at Sakrand (Sind) which they came across while making a survey of crop pests there. They have described the severity of the mite pest and how it was checked by the predator.

Ramakrishna Iyer, T. V., has mentioned in his *Handbook of Economic Entomology for South India*, *Paratetranychus indicus* H., as one of the minor pests of jola in some areas; and *Seymnus coccurora* R., as a predator on *Pulvinaria maxima* the Nim scale in Coimbatore. Lefroy has stated in *Indian Insect Life* that *Seymnus verampelinus* M., and *Seymnus nubilans* M., are commonly found feeding on cotton aphid and cotton mealy bug. In Mysore, the occurrence of the mite and its predators have now been noted for the first time.

During 1946 (July-September) it was seen that the leaf blades of Jowar in certain parts of Mysore, Mandya and Chitaddroog Districts had turned blood-red. This condition was known by different names: Chandramaru, Kunkumaroga, Rakthamari, Samberoga, Handiroga, etc., in different villages.

On examination of the leaf blades the presence of a large number of mites (*Paratetranychus indicus* H.) was made out on every blade that had turned red. It was evident that the reddening of the leaf was due to the work of the mites. All stages of the mites—eggs, nymphs and adults—were located generally on the ventral surface of the leaf blades (the presence of the mite was also made out on the dorsal surface of some). Counts taken from a number of infested leaves selected at random showed an average of 182 per square inch. This figure is sufficient to indicate that the incidence was quite severe. In patches of severe infestation the entire stalk of the plant had become dry and pithy and the development of grains was arrested; earheads too had become dry; some of the grains had also turned reddish.

Two kinds of predator beetles, *Seymnus* sp., were found actively feeding on the mites. One was a tiny black oval shaped beetle and was predominant in numbers. Both the larval grub and the adult were found to be feeding on this mite. The grub was found to actively chase the mite and when near dart at it to clutch it by its mandibles. It is transparent and full of warts and rows of short hairs on the tubercles. Pupae were seen on the leaf, attached by the caudal end. The adult beetle is uniformly black, the elytra being finely pubescent all over. The head region is tucked under, and cannot be made out and only the thoracic area is clearly seen.

The other beetle is bigger, brown in colour with a dark shade on the thorax and of the upper portion of the abdomen, the shade des-