Grateful thanks are due to Mr. E. W. Mason and Dr. Brown of Commonwealth Mycological Institute, England, for their kind help in identification of the fungus.


1. Tanaka, T., Mycologia, 1922, 14, 81.

OCCURRENCE OF GROWTH RINGS ON THE OTOLITHS OF THE INDIAN WHITING, SILLAGO SIHAMA (FORSKAL)

Studies on otoliths and scales for determining the age and rate of growth of Indian fishes have been reported only during comparatively recent years. It is well known that the otoliths and scales of several species of fishes in the temperate region possess distinct annual rings. This character has been extensively used in determining the year class composition of fish populations. The fishery worker in the tropical region is at a disadvantage as the otoliths and scales of most tropical fishes do not indicate such clear markings. There are, however, a few instances where growth rings on otoliths and scales have been observed in tropical fishes.1-4

During the course of investigations on the biology of the Indian whiting, Sillago sihama (Forsk.), very clear growth rings have been observed on the otoliths, and in most cases it is even possible to make out the complete rings with the naked eye. These otoliths, after cleaning, were evenly ground on carborundum with a drop of glycerine, dehydrated in various grades of alcohol, and finally cleared in xylol. The boundary lines between successive zones are well marked in many cases. The rings appear in dark translucent zones, concentric with the margin of the otolith, whereas the intervening zones appear white and opaque. False rings can be easily distinguished from the true rings by the characteristics given by Walford and Mosher5 for the Californian sardine, Sardinops caerulea.

The whiting catches landed along the coast of Rameswaran Island comprise individuals ranging in size from 2-29 cm., the commercial size being 16-23 cm. Observations made during the last 7 months indicate that this species of fish attains sexual maturity at a length of 13-14 cm., when they are perhaps one-year-old.


OCCURRENCE OF GROWTH RINGS ON THE OTOLITHS OF THE INDIAN WHITING, SILLAGO SIHAMA (FORSKAL)

The leaves of Rungia parviflora were found to be heavily infected by downy mildew soon after the rains in October 1953 at Bhagalpur. White cottony growths were found on the lower surface of the leaves, the corresponding upper surface exhibiting light greenish to brown colouration. Irregular spots were formed on the leaves, gradually increasing in size, resulting in the withering of the leaves.

The mycelium of the fungus is endophytic, colourless and intercellular. Sporangiohperes protrude from the stomata either singly or in fascicles. The sporangiophores are monopodially branched; the branches arise more or less at right angles to the main axis, the secondary branches are also at right angles, the terminal branches are apically obtuse. The sporangiophores are upright, 300-600 μ long and 7-12 μ thick with slight swollen base. Sporangia are hyaline, papillate, ovoid, 15-17 μ x 11-14 μ. The number of sporangia were very few. Oospores were not seen.

The fungus under study exhibits close affinity in morphological characters to Plasmopara wildemaniana P. Henne, var. macrospera Sawada1 (Syn. Pseudoplasmopara justiciae Sawada) on Justicia procumbens (Acanthaceae) reported from Formosa and is therefore referred to the same species. The specimen has been deposited in Herb. C.M.I. (Herb. I. M.I. No. 54717).

It is evident from available literature, this is the first record of the fungus on Rungia parviflora which is a new host for the fungus.

PLASMOPARA WILDEMANIANA
P. HENNE. VAR. MACROSPORA ON A NEW HOST RUNGIA PARVIFLORA NEES

The leaves of Rungia parviflora were found to be heavily infected by downy mildew soon after the rains in October 1953 at Bhagalpur. White cottony growths were found on the lower surface of the leaves, the corresponding upper surface exhibiting light greenish to brown colouration. Irregular spots were formed on the leaves, gradually increasing in size, resulting in the withering of the leaves.

The mycelium of the fungus is endophytic, colourless and intercellular. Sporangiohperes protrude from the stomata either singly or in fascicles. The sporangiophores are monopodially branched; the branches arise more or less at right angles to the main axis, the secondary branches are also at right angles, the terminal branches are apically obtuse. The sporangiophores are upright, 300-600 μ long and 7-12 μ thick with slight swollen base. Sporangia are hyaline, papillate, ovoid, 15-17 μ x 11-14 μ. The number of sporangia were very few. Oospores were not seen.

The fungus under study exhibits close affinity in morphological characters to Plasmopara wildemaniana P. Henne, var. macrospera Sawada1 (Syn. Pseudoplasmopara justiciae Sawada) on Justicia procumbens (Acanthaceae) reported from Formosa and is therefore referred to the same species. The specimen has been deposited in Herb. C.M.I. (Herb. I. M.I. No. 54717).

It is evident from available literature, this is the first record of the fungus on Rungia parviflora which is a new host for the fungus.
Examination of this one-year-old fish shows a single ring on the otolith, while those of 16-20, 20-24 and 24-28 cm. size groups reveal distinctly two, three and four rings respectively. The photomicrographs of otoliths reproduced here were taken with reflected light and show clearly the first, the second and the third growth rings. There are instances where some of the otoliths failed to show distinct rings at all for reasons not yet clear or conclusive. In most of the cases only the first and the second rings are seen and only in a few examples were the third and fourth rings clearly marked. In this connection the scales of the fish were also examined and some of them show the formation of clear annuli, particularly in the advanced size groups, while in the earlier stages these annuli are not clear.

The results obtained from the length frequency distribution were checked with the growth zones on the otoliths and scales. A well represented mode in the 14-15 cm. size group coincides with the series of specimens which denote one ring on the otolith. The other modes are not clearly marked although there are indications of modes which will be clarified with further data.

It is difficult to explain the exact significance of the formation of rings on the scales and otoliths, but a more critical study is being made particularly in relation to the feeding habits of the fish. It is probable that reduced feeding and the maturation of gonads occurring simultaneously may perhaps play a part in the formation of the growth checks found in the otoliths and scales. Details of the work will be published elsewhere.

My thanks are due to Dr. N. K. Panikkar for his guidance and encouragement.

Central Marine Fisheries Research Station, Mandapam Camp, March 30, 1954.


DACTYLISPA ALBOPILOSA GESTRO: A NEW HISPID PEST OF JOWAR (ANDROPOGAN SORGHUM) IN INDIA

DURING the months of August-September 1953, the Jowar plants in the plot of land adjoining the Institute were found to be heavily infested with a type of Hispid beetle, which was later on identified as Dactylispa albopilosa Gestro belonging to the superfamily Phytophaga, family Chrysomelidae.

The species albopilosa was first described by Gestro in 1888, from Thanlau in Burma (there was no mention of the host plant) and has not, so far, been recorded as a crop pest. This species is being recorded for the first time as a pest of Jowar in India.

The genus Dactylispa comprises a large number of species having a wide range of distribution in Ceylon, Sumatra, Dutch East Indies and Tanganyika. They have established themselves as serious pests of various commercially important crops like cinchona, kapok, coffee and maize.

Insects are oblong and about 5 mm. in length, yellowish brown in colour (Fig. 1). Prothorax quadrate, anterior cylindrical region raised into a pair of spines. On either of the lateral sides of the prothorax, there are three spines. The first and the second appendiculate on a common stalk, the second being the longer; the third and outermost spine is free, small and pointed. The apices of all the spines are black. Elytra punctate and striate. Along the scutellar edge of the elytra are four spines, the first and the last of which are longer. On each side, the elytral margin bears fourteen spines, while each elytral surface bears twelve. All the spines, except the minute ones (which are yellowish brown), are black with also a small area round their base.
Examination of this one-year-old fish shows a single ring on the otolith, while those of 16-20, 20-24 and 24-28 cm. size groups reveal distinctly two, three and four rings respectively. The photomicrographs of otoliths reproduced here were taken with reflected light and show clearly the first, the second and the third growth rings. There are instances where some of the otoliths failed to show distinct rings at all for reasons not yet clear or conclusive. In most of the cases only the first and the second rings are seen and only in a few examples were the third and fourth rings clearly marked. In this connection the scales of the fish were also examined and some of them show the formation of clear annuli, particularly in the advanced size groups, while in the earlier stages these annuli are not clear.

The results obtained from the length frequency distribution were checked with the growth zones on the otoliths and scales. A well represented mode in the 14-15 cm. size group coincides with the series of specimens which denote one ring on the otolith. The other modes are not clearly marked although there are indications of modes which will be clarified with further data.

It is difficult to explain the exact significance of the formation of rings on the scales and otoliths, but a more critical study is being made particularly in relation to the feeding habits of the fish. It is probable that reduced feeding and the maturation of gonads occurring simultaneously may perhaps play a part in the formation of the growth checks found in the otoliths and scales. Details of the work will be published elsewhere.

My thanks are due to Dr. N. K. Panikkar for his guidance and encouragement.

Central Marine Fisheries Research Station, Mandapam Camp, March 30, 1954.