

controlled sterilized condition. Seow and Wee² obtained success upto 90%.

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ACHLYA KLEBSIANA PIETERS—A NATURALLY OCCURRING FISH PATHOGEN

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WHILE surveying the pathogenic fungi associated with fish, some diseased specimens of *Nandus nandus* (Ham.) bearing white cottony patches and lesions scattered on their body were collected from a pond in a village Agaya near Shohratgarh, Basti district in March, 1983 (figure 1).

The fungus causing infection was isolated from the fish and was raised on sterile hempseed halves in sterilized distilled water. Its unifungal bacteria-free culture was prepared on the lines described earlier¹⁻³. The isolate was identified as *Achlya klebsiana* (Pieters)

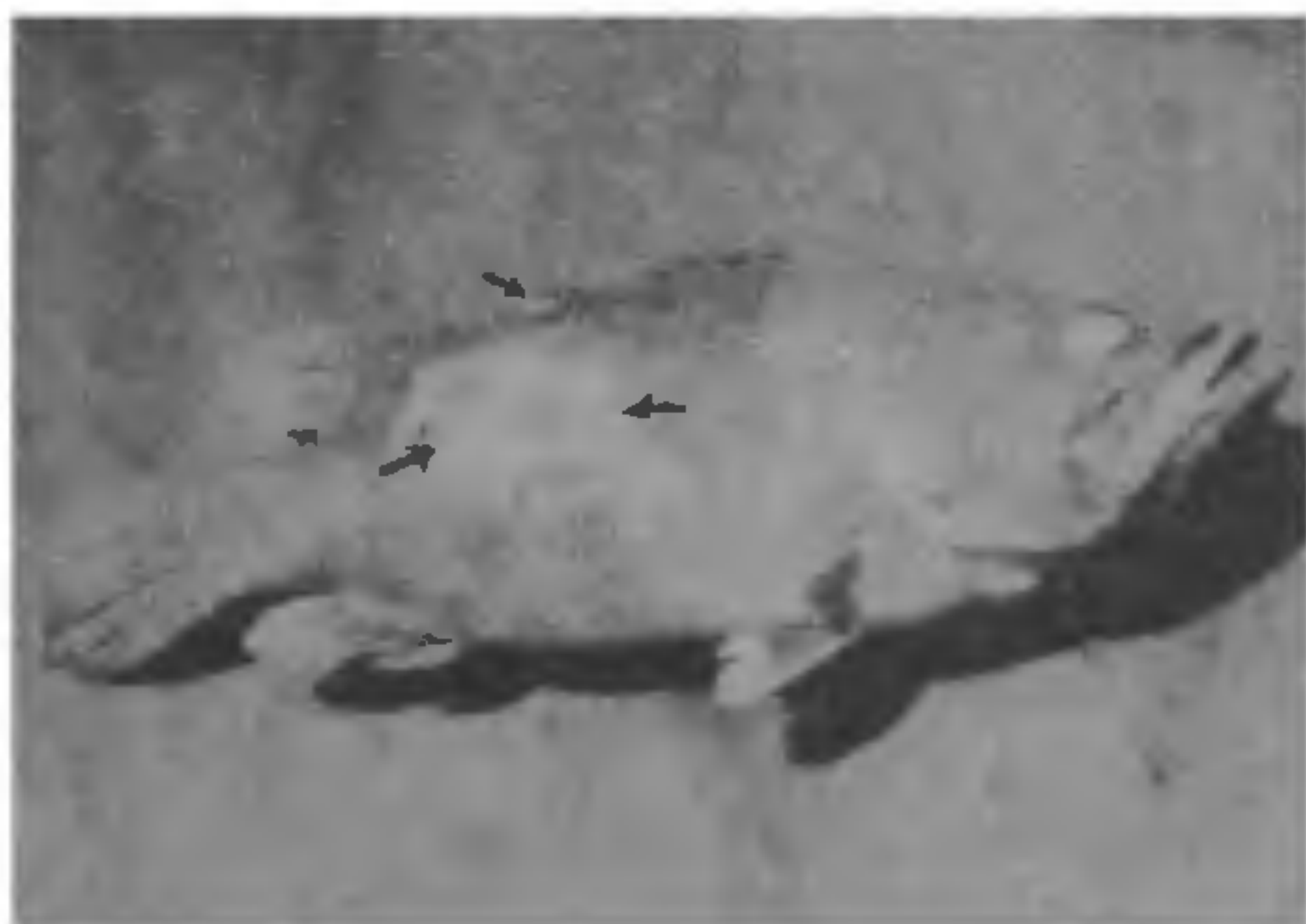


Figure 1. *Nandus nandus* (Ham.) bearing white cottony patches and lesions caused by *Achlya klebsiana* (Pieters).

Table 1 Infectious ability of *Achlya Klebsiana* (Pieters) on wounded and unwounded test fish

Name of fish	Mycosis evident within hrs	Death occurred within hrs
Wounded		
<i>Puntius sophore</i> (Hamilton)	18-20	86-90
<i>Colisa fasciatus</i> (Bl. and Sch)	21-24	92-96
<i>Chela laubuca</i> (Ham.)	16-18	44-46
<i>Cyprinus carpio</i> var <i>communis</i> (L.)	17-20	94-96

No. of fish studied - 2;

Mycosis evident and no. of fish dead - 2.

with the keys^{3,4} and the fish species was identified using the key of Srivastava⁵.

In order to establish the pathogenicity of the isolate obtained, controlled infection was studied by standard methods described by Scott and O'Warren⁶ using adult individuals of *Puntius sophore* (Hamilton), *Colisa fasciatus* (Bl. and Sch), *Chela laubuca* (Ham.) and *Cyprinus carpio* var. *communis* (L.).

Hyphae of the parasites were observed growing from the injured areas of the test fish within 16 to 24 hr of placing the fish in the infection troughs. The infected fish died within 44 to 96 hr of placing them in the infection troughs. Also, the injury greatly lowered the resistance of the fish to the fungal infection (table 1). The time of death was recorded and the fish was removed from the infection trough. Fungus growing on the infected fish was isolated and compared with the cultures of the original inoculum. It was found identical with the original fungus. For the purpose of maintaining a control for experiment, two fish were kept under the same conditions but not exposed to the inoculum.

Nolard-Tintinger⁷ had earlier reported the occurrence of *A. klebsiana* (Pieters) on the eyes of *Lebistes reticulatus* Peters and Vishniac and Nigrelli⁸ had reported its occurrence on platyfish, but since both the reports are about experimentally induced parasitism of this fungus on fish, the present communication is the first report about the occurrence of *A. klebsiana* (Pieters) as a natural fish pathogen.

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SEEDLING HANDEDNESS IN TRITICALE AND ITS PARENTS II: YIELD IN RELATION TO HANDEDNESS

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SEEDLING handedness was first studied in *Secale cereale* and in several cereals¹. This character was subsequently examined in *Bambusa arundinacea*² and in several other Gramineae³. Recently, the seedling handedness and handedness in successive leaves, flag leaves and spikelets have been investigated in *Triticale* and its parents^{4,5}. The morphological and physiological characters in relation to asymmetry have also been studied in these plants⁶. The present study deals with the yield in relation to seedling handedness in *Triticale* and its parents.

Grains of two cultivars of *Triticale* DTS-42-3 and DTS-280-7; three cultivars of *Triticum* NI-5439, Sonalika and Kalyanasona and of *Secale cereale* were sown in petri dishes and the seedlings were sorted out for their handedness. Handedness was detected in the seedling stage, when the first leaf begins to unfold after 4-6 days of sowing. Depending on the folding of the first leaf either in the clockwise or anti-clockwise direction, the seedlings were classified as left- and

right-handers respectively. Seedlings showing absence of folding were classified as neutral. Left- and right-handed seedlings (25) of each of *Triticale*, *Triticum* and neutrals of *Secale cereale* were transplanted in the field in separate rows to observe the yield parameters. Dry weights of spike and grains were determined. The spike length of *Triticale* and its parents was also measured.

As shown in table 1, left-handed plants bore longer spikes in all the cultivars of *Triticale* and *Triticum* with the exception of NI-5439. The left-handed plants of both the cultivars of *Triticale* and Kalyanasona of *Triticum* showed greater spike weight. NI-5439 and Sonalika of *Triticum* showed almost the same spike weight in both the left- and right-handed plants. The dry seed weight was higher in left-handed plants of *Triticale* and *Triticum* with the exception of the cultivar Kalyanasona in which there was no difference. This suggests that the left-handed plants yield more than the right-handed plants. Left- and right-handed seedlings in *S. cereale* constituted only 3% and the rest neutrals⁴. Hence the data on spike length, weight and dry grain weight were not recorded in neutral seedlings.

Rama Swamy and Bahadur⁶ noted more roots, greater chlorophyll content and faster growth rate in left-handed plants of *Triticale* and its parents. The present investigation shows that the left-handed plants are superior to the right-handed ones with respect to spike length, weight and grain weight. Greater pod and seed yield have been noted in the left-handed plants of *Vigna radiata* and *V. mungo*⁷. The right-handed plants of *Cocos nucifera* produced more fruits and larger amount of copra than the left-handed foliar spiralled plants⁸. A higher metabolic activity was also recorded in the former⁹. The right-handed *Cajanus* plants yielded more seeds than the left-handed ones¹⁰. In the light of the present findings and foregoing discussion on differences in grain yield, Kihara's¹¹ statement that "there is a possible relationship between foliar arrangement and yield of crop plants; it is necessary to examine the differences between right- and left-handed strains in their utilisation of solar energy" stands varified. Thus, it is evident that the left-handed plants are superior and give higher yield as compared to the right-handed plants in *Triticale* and its parents.

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