(alt. 2,700 m), Jammu and Kashmir, Himalayas, August 21, 1975. Leg. M. P. Sharma.

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A NEW HOST RECORD FOR THE FUNGAL GENUS *ACHLYA*

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During the course of investigations on aquatic fungal parasites of Kumaun, the opaque coloured infected eggs of the fish *Tor tor* Ham. were collected from Bhim Tal lake (Naini Tal), along with the transparent and yellow coloured healthy eggs. Inorder to investigate the possible fungal parasites, causing this pathological condition, the opaque coloured eggs were baited on boiled hempseed halves, and the fungi growing thereupon, were isolated to obtain the pure cultures, using the techniques described by Johnson[1]. The fungal isolates were identified as *Achlya flagellata* Coker and *A. prolifera* Nees (Sensu Johnson[1]).

The pathogenicity tests of these parasites on healthy eggs were conducted in the laboratory at room temperature (20°–25° C) and it was noted that both the isolates were pathogenic and caused the same symptoms as were noticed in the original collections, thus proving the Koch's postulates. It was further noted that amongst the two species, *A. flagellata* was found to be less virulent, which in first 24 hr of inoculation infected 85% of the eggs and totally inhibited them from hatching as against the 90% infection of eggs caused by *A. prolifera*. Out of the total hatching, *i.e.*, 15% of the test eggs, the infection progressed subsequently during the next 24 hr, causing their death in 33% of the hatchlings in the case of infection by *A. flagellata*, while in case of infection caused by *A. prolifera*, this mortality rate was almost 100% of hatchlings during the next 24 hr.

This pathogenic relation of *Achlya flagellata* and *A. prolifera* with the eggs of *Tor tor*, which is an important edible fish of Kumaun region, is of a great economic value, but was hitherto unreported.

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EXISTENCE AND EXPLOITATION OF LATENT GENETIC VARIATION FOR SALT TOLERANCE IN THREE CROSSES OF BARLEY

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Barley (*Hordeum vulgare*) is rated as one of the most salt tolerant crops in the world (Maas and Hoffman[4]). However, selection work to identify or diversify its tolerance to salts has been practically nil. Even a natural unselected population at least must vary for adaptively neutral, evolutionarily significant allozyme loci (Lewontin[3]). However, available evidence in this regard is ambiguous and indecisive (Nevo[5]). The barley crop possesses genetic variation for tolerance to salty environment as shown by Epstein[1] in a genetically diverse composite cross population. The results reported here reveal, perhaps for the first time, the existence and exploitation of tolerance to salty environments in fixed derivatives of barley.

Three intervarietal crosses of barley, *viz.*, DL 85 × DL 144, DW 472 × BG 105 and P 107 × RD 135 were selected at random to test this hypothesis. None of the parents involved was previously exposed to salt-affected environments. In good soils, however, their performance was stable and yieldwise, comparable to the standard released varieties of barley like 'Ratna' and 'Jyoti'. About 5000–6000 plants from each cross were raised by random bulk sampling method from F_3 to F_5 in a sandy loam sodic soil

TABLE I

Grain yield and sensitivity to sodic soil environment of certain F_7 pure line derivatives from three intervarietal crosses of barley

Derivative	Yield as % of check variety in good soil*[1]	Yield as % of check in sodic soil**[1]	Reduction in yield of pure line in sodic soil relative to good soil	Sensitivity and yield rating
CS 3	89·0	127·5	13·8	Resistant; low yielding
CS 8	127·8	127·0	39·9	Medium sensitive; high yielding
CS 11	93·1	97·2	53·1	Sensitive; at par with check
CS 21	70·4	69·8	55·1	Sensitive; low yielding
CS 34	131·3	115·5	53·2	Sensitive; high yielding
CS 52	101·0	139·4	14·9	Resistant; at par with check

* Check variety used—'Ratna'—which yielded higher than Jyoti.

** Sodic soil—sandy loam texture, pH 9·2 to 9·4; exchangeable sodium percentage on exchange complex 25 to 40; electrical conductivity of the saturated paste extract of soil 1·8 to 2·2 mmhos/cm.

[1] Mean yield of Ratna in good soil 25·8 q/ha; in sodic soil 12·1 q/ha.

environment (pH 9·2 to 9·4, exchangeable sodium percentage 25–40, ECe, 1·8–2·2 mmhos/cm). During this phase, only natural selection for resistance to sodic soil was allowed to operate in all the segregating generations and they were not exposed to good soil (pH 7·8–8·0; ESP 8–11; ECe 1·5–1·8 mmhos/cm). In F_6 generation, 100 best plants from each cross were selected and their progenies were grown in 2-replication augmented layout design with single rows (4 m long) to compare their yield against check varieties (Ratna and Jyoti) repeated 5 times within a replication under good soil as well as under sodic soil. In F_7, about 50 highest yielding progenies from each cross were yield-tested and were simultaneously assessed for their relative resistance to salt-affected soil condition as standardized by Richards[6], *i.e.*, whether their yield performance was affected to an extent of 50% of their yield in good soil, The data on representative six derived lines (Table 1) revealed that they fell in combination of different categories, *i.e.*, resistant to sodic soil with a low yield potential in good soil (lower than check variety Ratna)—CS 3; resistant with as much yield as check—CS 52; sensitive to sodic soil with an yield potential better than check (CS 34), lower than check (CS 21) and at par with check (CS 11) and of course, the intermediate sensitivity with high yield under good soil. It may be mentioned that almost all the parents involved in the three crosses belonged to the sensitive group with the yield reduction exceeding 50%, except BG 105 with an yield reduction of nearly 45% under sodic soil.

Such a combination of yielding ability with tolerance to sodic soil in the progenies of those barley crosses which did not include any parent specifically selected for sodicity tolerance, indicates that the parents possessed latent genetic variation for sodicity tolerence, resulting in the observed types of derivatives. The latent genetic variation for a particular trait might be expected to exist in genotypes even if they lack previous selection history for it (Gaul[2]). However, the present result is perhaps the only reported example of demonstrating the existence of latent variation for tolerence to sodic soil conditions in pure lines of barley and combining, through selection, the salt tolerance with high grain yield.

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