pod striations also occurred in various plants. All these somatic variants add to the 'apparent offtypes' and some of them could be of selective value if the characters affected are economically important. Since the frequency of occurrence of such variants is apparently high, they could be significant to pigeonpea improvement.

The variants observed could be mutational in origin, but mutations have a low probability of occurrence and are not expected to appear simultaneously in several cells of a tissue but the same is not true of treptions which may occur simultaneously in all or several cells of a tissue or region of the body as has been reported in maize, flax, *Antirrhinum majus,* etc. Treptions are the result of a natural stimulus which triggers some regulatory process whereas mutations result when a mutagen interferes with the regulatory mechanisms of the cells so that they do not work to completion[3].

The *Cajanus* types Hy–3 A, Hy–3 B and Hy–3 C are sister lines, which are of economic worth isolated from a single accession 2817. Hy–3 A and Hy–3 B are similar in all respects except for seed colour ; Hy–3 C has orange red flowers and more basal branches as against yellow flowers and lack of basal branching in Hy–3 A and Hy–3 B. Several other variants of this family are also under study. In spite of growing these populations in isolation and selecting plants true to type, further variation continues to manifest. The isolation of similar but slightly different sister lines and the occurrence of continued variation in spite of purification efforts cannot satisfactorily be explained on the basis of possible outcrossing only. At least some of the variants appear somatic in origin. Further studies on the origin and frequency of somatic variations and their role in the improvement of *Cajanus* are being investigated.

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TWO FUNGAL PARASITES OF THE EGGS OF *CHANNA STRIATUS* (Bl.)

ALTHOUGH several reports of fungal infections of fishes and fish eggs have appeared in literature from temperate and tropical regions, very little work so far has been done on fish mycopathology in India. The only report on fungal parasites of freshwater fishes of India is that of Bhargava *et al.*[1].

During the course of an investigation on fungi associated with diseased fish and fish eggs, the authors collected eggs of *Channa striatus* in June 1974, from Ramgarh Tal, Gorakhpur. Many of the eggs had mycelial outgrowths, visible with naked eyes, on their surface. Detailed microscopic observations in the laboratory revealed that 70% of the eggs had the presence of fungal mycelium on them. The infected eggs were opaque and whitish in appearance while the healthy eggs were transparent and yellow in colour.

Isolations were made from the infected eggs on boiled hempseed-halves and unifungal, bacteria-free cultures were raised on the lines described by Raper[3], Tiffney[8] and Johnson[2].

These isolates were identified as *Aphanomyces laevis* and *Achlya flagellata* with the help of monographs of Johnson and Scott[4].

In order to establish the pathogenicity of the isolates obtained, controlled infection investigations were conducted in the laboratory for each of the two isolates by standard methods. In the experiments conducted with *Aphanomyces laevis* fungal mycelium, protruding from the surface of all the eggs could be seen after 24 hours of the start of the infection test. The transparency of the contents of these eggs was changed to opaqueness. None of these eggs hatched. In the case of *Achlya flagellata,* the infection developed only on 60–70% of the eggs. The remaining 30–40% eggs hatched after the second day releasing hatchlings. Most of these hatchlings, however, subsequently developed fungus infection on their surface and died.

These observations showed that the eggs of *Channa striatus* are susceptible to the attack of *Aphanomyces laevis* and *Achlya flagellata* and that *Aphanomyces laevis* is a more virulent parasite of these eggs causing 100% mortality.

Out of these two parasites *Aphanomyces laevis* had been reported earlier as a parasite of the eggs of *Salmo gairdneri* by Scott[5]. The present report, however, is the first about the occurrence of this fungus on the eggs of *Channa striatus.*

Although *Achlya flagellata* has been reported earlier as a fish parasite by Tiffney and Wolf[7], it has never been reported in literature as a parasite of fish eggs. The present communication, therefore,

is the first report of *Achlya flagellata* as a parasite of fish eggs.

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^{14}C INCORPORATION IN CHLORAMPHENICOL INHIBITED GROWTH AND ITS REVERSAL BY RIBOFLAVIN IN GREEN GRAM

SEEDS of *Phaseolus aureus* L. (cultivar) were germinated in sterilized petri dishes containing 20 PPM of riboflavin, 20 PPM of chloramphenicol and their combination in a luminosity of 1000 Lux and at 25° C ± 1° C. The presowing soaking treatment of riboflavin and chloramphenicol was given only for 24 hrs to avoid the possibility of infection with vitamin and then they were allowed to grow in distilled water. ^{14}C carbon dioxide was fed to the shoot system of the 7 day old seedlings by liberating $^{11}CO_2$ by the action of 3 ml of 3N HCl on 25 μci of NaH $^{11}CO_3$ in a $^{14}CO_2$ feeding assembly for 10 minutes at a light intensity of 20,000 Lux. The samples were extracted with 80% alcohol. The alcohol insoluble residue was hydrolysed with a mixture of equal parts of boiling formic acid (77·5%) and 5 N HCl. The radioactivity of alcohol soluble and alcohol insoluble fractions were measured as per the method of Sinha[1] using end window GM Counter.

Basing on the earlier observation by Gopala Rao[2] that riboflavin increases chlorophyll synthesis, growth and protein content, the present study has been designed to ascertain whether riboflavin is involved in CO_2 fixation or not. The increase in protein content by riboflavin treatment and hence its capacity to reverse the inhibition of growth by chloramphenicol (inhibitor of protein synthesis) was reported earlier by Gopala Rao[3]. As chloramphenicol also inhibits chlorophyll synthesis[4] it was felt necessary to study the interaction of chloramphenicol and riboflavin to assess the involvement of riboflavin in CO_2 fixation, related to photosynthesis at least indirectly.

TABLE I

^{14}C incorporation into alcohol soluble and insoluble fractions

(Radioactivity expressed as counts/mt/g fresh wt.)

	Alcohol soluble		Alcohol insoluble	
	Radioactivity incorporated	% of radioactivity	Radioactivity incorporated	% of radioactivity
Control	9,937	100	6,712	100
Chloramphenicol	2,512	25	1,862	28
Riboflavin	14,325	144	8,512	127
Riboflavin + Chloramphenicol	8,237	83	3,712	55

In the present study ^{14}C fixation was more in the riboflavin treated seedlings (both in alcohol soluble and alcohol insoluble fractions) than in the control seedlings. ^{14}C incorporation was very low in chloramphenicol treated seedlings when compared to that of controls. The labelling was intermediate in the chloramphenicol and riboflavin combination. Apparently this may indicate that riboflavin can increase photosynthetic efficiency which can be substantiated by the earlier report that it increases chlorophyll synthesis. Biotin was known to be involved in CO_2 fixation[5].

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CELLULOLYTIC ENZYME PRODUCTION/ NON-PRODUCTION BY SOME PATHOGENIC FUNGI

CELLULOLYTIC enzymes, though known since Ward's elucidation in 1888, are not of much consequence in pathogenesis. Nonetheless, they are important on account of their accessory role. Major portion of our knowledge of these enzymes is contributed