

A Specific Colour Inhibitor Gene in Rice.

CERTAIN varieties of rice are characterised by the presence of anthocyanin pigment all over the plant. The red colour in the presence of chlorophyll imparts a dark purple appearance. Inheritance studies by Kato and Takezaki show that the coloured condition is dominant to the green and in F_2 there is either a complementary digenic or a trigenic segregation.¹ The writer by crossing a purple rice variety with an entirely green type obtained in F_1 green-leaved plants with red sheath. In F_2 green and purple-leaved plants were obtained in the proportion of 13 : 3. The F_2 green plants were of two kinds—with red sheath and without. In F_3 the entirely green plants bred true; those that had red sheath either behaved pure or split in the monogenic ratio of 3 green : 1 purple or repeated the F_1 performance. The purples either gave only purple progeny or split in the proportion of 3 purple : 1 entirely green. Thus the F_3 behaviour was in conformity on the basis of an inhibitory gene effect. In addition to above, analysis of other gene functions show that a major gene is responsible for producing anthocyanin pigment all over the plant. Its action, however, is checked in the leaf region by a partially epistatic gene, resulting in plants with green leaves but with red sheath. When the specific inhibitor is absent the plants are entirely purple as the anthocyanin gene is able to extend its influence in the leaf region also.

B. S. KADAM.

Rice Breeding Station,
Karjat, Kolaba, B. P.
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