

molybdenum increases the total protein-bound amino acid content by about 2% over nitrogen. The substantial increase in the concentrations of the essential amino acids including lysine, serine and glycine, glutamic acid and others in the grain proteins suggests the great potentiality of molybdenum in the culture of protein-rich rice varieties.

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Colchicine Induced Mixoploid in Coriander

Coriander (*Coriandrum sativum*) is one of the important condiments being used in cooking, flavouring beverages and in medicine. Increase in oil content and green foliage following polyploidy has been reported in this crop¹. The present study was undertaken to induce polyploidy by treating seedlings at cotyledonary leaf stage with 0.15 and 0.25% of colchicine in aqueous solution for 24 hours. After treatment the seedlings were thoroughly washed with distilled water.

40 days after treatment a mixoploid plant with a few leaves which were more dark, broad and leathery in consistency was observed among the plants treated with 0.25% colchicine. The flower buds from different umbels were fixed separately in acetic alcohol (1:3) and PMC smears were made using 1% acetocarmine. In two umbels the chromosome number was $2n = 44$ as against $2n = 22$ in the normal ones. The mean association of chromosomes in the tetraploid cells was $2.40 \text{ IV} + 1.34 \text{ III} + 14.60 \text{ II} + 1.20 \text{ I}$, the range being $1 \text{ IV} + 1 \text{ III} + 18 \text{ II} + 1 \text{ I}$ to $5 \text{ IV} + 1 \text{ III} + 10 \text{ II} + 1 \text{ I}$ per PMC at metaphase 1.

Meiotic irregularities in the form of laggards and bridges were observed during first anaphase in 20% and in 1.25% cells, respectively.

The study of the mixoploid plant is interesting in view of the low frequency of quadrivalents observed in the tetraploid cells. In an autotetraploid large number of quadrivalents is expected, since each chromosome is present in quadruplicate. But in the present study the mean frequency of quadrivalents observed in tetraploid cells was 2.40 which is rather low. The low quadrivalent frequency may be due to lack of perfect homologous partners². If

this is true, then it is quite likely that *Coriandrum sativum* which itself is a monotypic species may be of polyploid origin with two closely related genomes since the possibility of only quadrivalents at octoploid level has been reported in this crop². Such a possibility has been recently reported in a strict diploid species like mung bean (*Vigna radiata*)³. Thorough investigations are required to explain the nature and causes of low quadrivalent frequency at tetraploid level. This may throw light on the phylogenetic position of this crop. Studies in this direction are under progress.

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Collar Rot of Sunflower (*H. annuus*) A New Host Record from India

Collar rot of sunflower caused by *Sclerotium rolfsii* (Sacc.) was first observed in the month of September 1972 at Oil Seed Research Station, Latur, in Maharashtra State. A review of literature shows that the fungus has not been reported so far on sunflower from India, although it has been reported on sunflower from Tucuman province¹, Argentina², Queensland³ and Uruguay⁴. Affected plants in the field were recognised by sudden wilting and drying. Collar portion of the plant was the general point of attack, on which a tuft of white mycelium was found growing. Infection was mostly in seedling stage. Later on brown sclerotia were produced on the affected portion of the plant. Pathogenicity of the fungus was established by soil inoculation method. The inoculum was prepared by growing the fungus on sterilized crushed maize seed medium. Typical symptoms were produced within a week of inoculation which were identical to those produced in the field.

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