Fruit Rot of *Trichosanthes dioica* L. Caused by *Pythium cucurbitacearum* Takimoto in West Bengal

Plants belonging to the family Cucurbitaceae are susceptible to a few *Pythium* spp. Commonest infections are those caused by *P. aphanidermatum* (Ed.) Fitz[1]. Takimoto (1941) from Japan first reported *P. cucurbitacearum* sp. nov. on a few curcurbitaceous plants. Samples of rotten fruits of *Trichosanthes dioica* collected from fields of Nadia District, West Bengal, has yielded *P. cucurbitacearum* Tak.

Infections generally start from the stylar end and characteristically cause extensive soft rotting with fine mycelial growth on the surface at later stages. Diagnostic characters of the species as noted on host are as follows :

Hyphae broad, 4–6 μ in breadth ; zoosporangia papillate, terminal, on short sporangiophores, mostly spherical, varying to ovoid, thin-walled with granular protoplast, measuring 22–35 μ × 20–30 μ ; oogonia, on long slender hyphae, are spherical containing mostly central, rarely peripheral oosphere, measuring respectively, 20–25 μ and 12–16 μ in diameter. Antheridia (lobes) nearly spherical to clavate, making basal contact with oogonial lobe at the point of its origin, may be rarely bilobed, measuring 8–10 μ in diameter. Copulation amphigynous, antheridial nucleus passing apparently through a pore at contact. Oospores spherical, thick-walled, uniform, measuring 15–18 μ.

The species *P. cucurbitacearum* Tak. is a new record for India and *Trichosanthes dioica* is an addition to the list of its hosts. Material is preserved in the Herbarium, Department of Plant Pathology, Kalyani University.

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West Bengal, *July* 29, 1974.

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Morphogenesis in Seed Cultures of *Spathoglottis*

Orchids produce millions of seeds per capsule, but only a few germinate and attain blooming. The orchid breeders generally follow vegetative propagation. For over 50 years successful attempts have been made to germinate orchid seeds on agar media[1,2]. This communication describes the germination of seeds, and morphogenesis of embryo in *Spathoglottis plicata* in vitro.

For the present investigation, the plants with violet flowers were selected. The seeds were aseptically scooped from mature capsules, and were placed on a modified White's agar medium with 2% sucrose (BM), and also on BM supplemented with casein hydrolysate (CH), coconut milk (CM), 2,4-D, IAA, NAA, and kinetin, individually and in different combinations. Each culture received about 40 seeds, and cultures were maintained under controlled conditions of light (8–10 ft candles), temperature (25° C ± 2) and humidity (about 60%).

The seeds at culture contained an undifferentiated embryo enclosed by a thin, transparent seed coat. In the majority of the cultures, they swelled within 2–3 weeks. On BM about 4% seeds germinated. On the contrary, a significant response was noted on BM + CM (10%) and BM + CH (1000 ppm) with 60% and 80% germination, respectively, and satisfactory growth of seedlings. But, on BM + CM (10%) + CH (1000 ppm) + IAA (1 ppm) + kinetin (1 ppm) and BM + CH (1000 ppm) + IAA (1 ppm) + 2, 4-D (ppm) only 25% and 20%, respectively, produced seedlings. During germination, the swollen embryo emerged from the seed coat as a creamy-white, or greenish, spherule which later developed into a 'top'-shaped protocorm with numerous unicellular rhizoids. Within 6–7 weeks of culture, from the protocorm differentiated a shoot apex which developed into a shoot with 2 or 4 leaves ; and 2 or 3 roots in another 2 weeks. By about the 13th week we obtained a fully-differentiated plant with 6–8 leaves and 4–6 roots.

In addition, the seeds also exhibited several interesting features like callusing, abnormal seedlings with thick, negatively-geotropic roots, and differentiation of adventitious buds on protocorms. The buds further developed into multiple shoots. The callus was subculturable, and rapid growth occurred on BM + 2,4-D (0·5 and 1 ppm) + NAA (0·5 to 2 ppm). When subcultured on BM, 8% cultures differentiated roots, whereas on BM + CH (1000 ppm) 90% cultures developed vigorously growing roots.

The hypocotyl segments showed a high degree for differentiation of roots and shoots resulting in plantlets. The latter were transferred to pots containing vermiculite and, subsequently, soil. In the green house the plantlets developed several new leaves and reached a height of 15–20 cm in about 4 weeks.

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