

チュウリップモザイクウイルスの球根接種によって生ずる チュウリップ花の病徴

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Full-Break of Tulip Flowers by Bulb Inoculation with Tulip Breaking Virus

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山口 昭* : チューリップモザイクウイルスの球根接種によって生ずるチューリップ花の病徴

It has been reported by several workers^{1,2,3)} that color breaking pattern of pink tulip flowers by virus infection was governed by the growing stages of tulip plant at inoculation. This paper describes the response of petal color of a pink tulip to bulb inoculation with tulip breaking virus.

Surfaces of 20 healthy tulip bulbs (var. William Pitt) were rubbed with virus sap containing 600 mesh carborundum. Inoculum was expressed leaf sap of tulip breaking virus-infected tulip plant. Twenty healthy tulip bulbs rubbed with leaf sap from healthy tulip plant served as control. After inoculation, the bulbs were washed with tap water and planted in soil in November. In the current blooming season (in April next year), symptoms on petal were observed. In experiment of 1967-1968, in which bulbs were planted 2-5 cm below the soil surface, only 8 of 20 bulbs inoculated bloomed, and the remainder either did not emerge above the ground or flower buds remained blind. Ten of 20 control plants also remained blind. It is presumed that this was caused by spread of fungi such as *Botrytis* resulting from rubbing the bulb surfaces, not by the effect of virus infection. This occurred even in healthy sap-rubbed controls. Consequently, in experiment of 1968-1969, inoculated or control bulbs were planted shallowly so that the upper halves appeared above the soil surface. All 20 flowers from inoculated bulbs and 13 flowers from control 20 bulbs bloomed.

In experiment of 1967-1968, 3 flowers out of 8 plants bloomed showed full-break (complete white) and 5 flowers showed self-break (dark red). All 20 flowers bloomed showed full-break in experiment of 1968-1969 (Fig. 1B). None of the flowers grown from control bulbs rubbed with healthy leaf sap showed symptoms. They looked normal in both experiments (Fig. 1A). The completely white flowers appear sometimes in the case of successive cultivation of infected bulbs. It has been shown that the earlier the inoculation, the greater the white part in a pink petal, when pink tulip petal broke partially by the inoculation at early growing season¹⁾. From these facts, I have assumed that the color breaking pattern might be governed by the amount of virus that multiplied within a tulip plant up to blooming time³⁾. White flowers obtained by bulb inoculation in this experiment may support this assumption.

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Fig. 1. A : William Pitt flowers, healthy control.
B : Full-break of William Pitt flowers by bulb inoculation with tulip breaking virus.