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In Vitro Pollen Germination and Pollen Tube Characteristics in Tetraploid Red Clover (*Trifolium pratense* L.)

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Abstract: The morphological characteristics, fertility and in vitro germination of natural tetraploid red clover (*Trifolium pratense* L.) pollen were examined as well as the characteristics of pollen tubes and callose formation. Pollen grains of red clover are tricolporate and usually the germination of pollen is monosporic. Among the pollen tubes that were formed under in vitro conditions, in addition to those that went through the normal growth process, poorly or non-grown pollen tubes were also observed. In addition, some abnormalities in the form of callose deposition were observed in the pollen tubes.

Key Words: Tetraploid, *Trifolium pratense* L., in vitro germination, pollen, red clover.

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