Current Topics in Biophysics (Zagadnienia Biofizyki Współczesnej) vol. 20 (2), 1996, 149-153

## A synthetic approach to biophysical theories of water translocation in plants occurring over long distances

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This paper is an attempt of a synthetic approach to biophysical theories concerning water translocation in plants occurring over long distances (stages). For that purpose a definite block model of a plant is developed. It includes water displacement across the root (I stage), xylem transport (II stage), water displacement through leaf tissues and its transpiration to atmosphere (III stage), and phloem transport (IV stage). The basis of our consideration is the so-called integrated model of a plant. It is derived from the theory of root pressure, transpiration-cohesion theory, graviosmotic theory and Münch's theory modified recently by Kargol (1994). On the basis of this model, long-distance transport is described mathematically in an integrated way taking into consideration its interrelationships on particular stages.