

Letter to the Editor

A new view on plant cell

Presently, two important, closely related problems of modern plant biology: the concept of the plant cell and a structural theory of plant biological organisation are under intensive discussion.

Our knowledge about plant cell wall biology has grown significantly from the sixties of the 20th century, when proteins were identified by their enzymatic activity in the intine of pollen grains and this plant cell wall was described for the first time as a 'living and physiologically active structure'. The contemporary success of the studies of plant cell wall activity results from the use of new molecular techniques, including the analysis of transgenic plants, as well as the new views of researchers on the role of the cell wall in the life of the plant cell and of whole plant body. Such an approach is more inspiring and more important for understanding functioning of plants than a classical one, where the cell wall considered a 'dead' part of the cell, was completely neglected.

To date, opinions on the question 'what is a plant cell?' differ. The difference concerns the question whether the plant cell wall is a part of the cell (not only the protoplast). The view that the cell wall is an integral, highly dynamic element of the plant cell and of the plant body, involved in a bi-directional flow of information is at present verified by the data supplied by numerous experimental plant biologists. Cell walls are produced by the cell protoplast and they form a structural and functional continuum within the whole plant. The paper of P. Wojtaszek on many aspects of activity of the plant cell wall (some of his papers are cited in the present review) also supports the above view and consequently – speaks for the acceptance of the organismal theory of plant body organisation, which is convincingly discussed by the Author, as opposed to the cellular theory. I strongly recommend this presentation to the readers of *Acta Biochimica Polonica*.

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