



ARABINO GALACTAN PROTEINS ARE INVOLVED IN CELL AGGREGATION OF CELL SUSPENSION CULTURES OF *BETA VULGARIS* L.

ABSTRACT

Arabinogalactan proteins (AGPs) are glycoproteins present at cell surfaces. Although exact functions of AGPs remain elusive, they are implicated in plant growth and development. The aim of this study was to evaluate the role of AGPs in the process of cell aggregation of *Beta vulgaris* L. suspension cultures. It was observed that *B. vulgaris* suspension cultures accumulated AGPs in parallel form to its cell growth. The AGPs maximum content in the stationary phase was 0.330 mg g^{-1} dry weight (DW) in the cell wall (CW) and 1.534 mg g^{-1} DW in the culture medium (CM), generating cell aggregates $>500 \mu\text{m}$ (93.21% DW). The addition of tunicamycin (TM) caused a reduction of AGPs content in CW and CM of 46 and 64%, respectively. These changes were associated with inhibition of growth and the reduction of the cell aggregates $>500 \mu\text{m}$ (50.0% DW). When TM was removed from the CM, cell growth, aggregation, and AGPs content on CW and CM were recovered. Precipitation of AGPs with Yariv reagent generated a reduction of 61.14% of AGPs content in CW and a total inhibition of AGPs secretion in CM. This Yariv treatment generated a reduction in the cell aggregates $>500 \mu\text{m}$ of 51.31% of DW. When the Yariv reagent was removed from the culture, cells did not recover their AGPs accumulation. In addition, cell cultures did not recover their ability to grow and aggregate. These results indicate that AGPs are molecules required in the cellular aggregation process of *B. vulgaris* L. suspension cultures.

<http://link.springer.com/article/10.1007%2Fs11240-010-9905-3#page-1>

CEPROBI - IPN

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Revista: Plant Cell Tissue and Organ Culture. (PCTOC) Volume 106, Issue 1, pages 169–177.