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Poster Abstract - B.40

DIFFERENTIAL EXPRESSION OF TWO NEWLY ISOLATED GENES CODING FOR BOWMAN-BIRK INHIBITORS IN LENTIL

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Among protease inhibitors, Bowman-Birk ones (BBIs) are present in various species of the Fabaceae family. They are small polypeptides, usually with a double head and are therefore able to inhibit two proteases per inhibitor molecule. These inhibitors are antinutritional factors and are thought to be involved in plant defence against attacks of various organisms (insects, pathogens, predators, ecc.).

Recently, two paralogous BBI genes have been isolated in lentil. Protein sequences deduced *in silico* from lentil DNA sequences suggest that the two coded proteins are highly similar to the sequences of *Pisum* BBI trypsin inhibitors TI1 and TI6, respectively. In fact, both are double-headed inhibitors, one class showing the presence of a trypsin- and a chymotrypsin reactive site (TI1-like sequence), the other showing two trypsin-inhibition sites (TI6- like sequence).

In order to evaluate the expression pattern of the two classes of the BBI genes isolated, total RNA was extracted and cDNA synthesised from lentil leaves, roots and immature seeds. The amplification of cDNA using TI1-like gene primers produced the expected fragment only for seeds, whereas did not yield any product for roots and leaves. Opposite results were obtained when cDNA was amplified using TI6-like gene primers: the band of the expected length was observed for leaves and roots, but not for seeds, thus indicating that the two BBI classes show a differential expression in distinct lentil organs.

Real-Time PCR experiments have allowed to compare the levels of expression of these coding sequences in the plant organs considered in this study.