The isoline to Taylor's Horticultural will allow the estimation of the influence of PHA on agronomic traits and nutritional value, avoiding the interferences of the genetic background. The isoline will also be ideal for studying the molecular basis of this mutation. Seed for experimental purposes may be obtained from A. Allavena.

Reference


THE ROLE OF CARBOHYDRATE IN THE INTERACTION OF PHASEOLIN AND PROCYANIDIN

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Tetrameric procyanidin and phaseolin (G1) were extracted from the hull and the cotyledon of black beans (Phaseolus vulgaris), respectively.

Extracted phaseolin was deglycosylated (DG1) with trifluoromethanesulfonic acid and phaseolin secondary structure studied by Circular dichroism spectroscopy.

The electrophoretic mobility of G1 was reduced from more than three bands to a single band by deglycosylation as neutral and amino sugars were removed from the glycoprotein backbone.

Conformational studies on G1 and DG1, using Circular dichroism, indicated the presence of less than 10% alpha-helix structure and the presence of more than 90% beta and unordered structures.

The conformational changes induced by deglycosylation was associated with improved proteolysis as evidenced by the low molecular weight polypeptide subunits of heated protein on SDS-PAGE and by the result of in vitro digestion.

Conformational differences between G1 and DG1 may have accounted for the differences in binding of both proteins to procyanidin. $^{125}$I labelled G1 bound strongly to tetrameric procyanidin while $^{125}$I labelled DG1 bound weakly to tetrameric procyanidin. The interaction of G1 and procyanidin was weakened by the presence of soluble amyllose or soluble pectin. Amylose was more effective than pectin in weakening the interaction of G1 and procyanidin as well as the interaction of DG1 and procyanidin.

The study has demonstrated that the quantitative reducing availability of G1 ascribed to tannins does not hold in system in which amylose concentration exceeds procyanidin concentration.

The digestibility reducing effects of G1 ascribed to condensed tannins may be partly associated with the carbohydrate moiety of G1 which may prevent G1 accessibility to proteases.