Biochemical characterization of buckwheat main seed storage protein for its geographical traceability

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AIM

This work wants to study the structural characteristics of the 13S and 7S globulins (storage proteins) to investigate if the protein profile can be influenced by the variety and provenience of cultivated buckwheat cultivars. This is relevant for food traceability and consumer protection in global trading.

BUCKWHEAT

- Pseudocereal crop, belonging to the genus *Fagopyrum.*
- Species used for food: common (*F. esculentum*) and Tatary buckwheat (*F. tataricum*).
- Composition: 55% starch, 12% protein, 4% lipid, 2% soluble carbohydrates and 7% fiber.
- Proteins: 64% are 13S globulins, hexameric, where each monomer is formed by two subunits linked by a disulphide bond. Another important fraction is represented by 7S globulins that are vicilin-like.

RESULTS

- The presence of two main bands at about 40 and 25 kDa (A and B) is typical of the reduced 13S globulin family of most species. Components around 60 kDa correspond to the 7S globulin subunits (V).
- Spots distribution traces the geographical origin more than the species
- Samples from Teglio can be discriminated from the other two originating from China and Germany.

CONCLUSIONS

- This is relevant for geographical traceability and consumer protection in global trading.
- Specific 2D-electrophoretic maps define the differences and the presence of common patterns that establish unique and distinctive traits.