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The quest for tolerant varieties –
Phenotyping at plant and cellular level



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Rutin content in seeds of European buckwheat (*Fagopyrum esculentum*) cultivars

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Buckwheat (*Fagopyrum esculentum* Moench) is an important functional food and rich source of vitamins, essential amino acids and phenolics, responsible for many of the health benefits and antioxidant properties. This pseudocereal contains quercetin-3-rutinoside or rutin as a major phenol in seeds, approx. 90.4% of total flavonols content. Rutin is an antioxidant that has many pharmacologically useful properties, such as anti-inflammatory, anticarcinogenic, antithrombotic, cytoprotective and vasoprotective effects. The aim of this study was to investigate content of rutin in seeds of cultivars from Western, Central Europe and Balkans: Serbia ('Novosadska'), Slovenia ('Darja', 'Prekmurska' and 'Cebelica'), Bosnia and Herzegovina ('Bosna 1' and 'Bosna 2'), Montenegro ('Godijevo' and 'Lokve'), Austria ('Bamby'), Czech Republic ('Ceska'), France ('La Harpe'), Slovakia ('Spacinska 1') grown in the Balkan area and to compare them with indigenous Balkan buckwheat cultivars. Rutin content was determined using HPLC-DAD analysis, on a Thermo Finnigan Surveyor HPLC system with a diode array detector at 350 nm. 'Bosna 1' (114.6 mg 100 g⁻¹ dry weight) and 'Bosna 2' (151.4 mg 100 g⁻¹ dry weight) were highlighted with the greatest rutin content, 13.6-34.7 and 18.0-45.9 times higher than in other cultivars, respectively. Beside these two cultivars, a scale made according to rutin content in buckwheat seeds organise investigated cultivars in the following order: 'Novosadska' > 'La Harpe' > 'Godijevo' > 'Darja' > 'Cebelica' > 'Bamby' > 'Ceska' > 'Spacinska 1' > 'Prekmurska' > 'Lokve'.

These results suggest that indigenous buckwheat cultivars contain important dietary antioxidants and could be of great interest for buckwheat breeders and an important source of functional food due to significant differences in their contents among cultivars.