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Characterization of different cultivar of *Fagopyrum esculentum*: a high value nutritional source

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The common buckwheat (*Fagopyrum esculentum,* Moench) belongs to Polygonaceous family, and originates from Northern Europe and Asia [1]. It has strong adaptability to aversive environmental conditions, for this reason it is mainly cultivated in mountainous area in Russia, China and Ukraine [1,2]. *F. esculentum* can grow in poor soil with limited agronomic treatments, for this reason is consider an emergency crop [3]. Furthermore, due to the short cycle, in fertile plain soil, buckwheat could be cultivated as intercrops, after wheat and other winter cereals, increasing the profitability of cereal farms. This dicotyledon is considered a pseudocereal that have similarity with cereal grains in the physical appearance and in starch content, but they differ in their anatomy [1]. Buckwheat has also an excellent nutritional value and a low allergenic impact. Proteins are not toxic for celiac patients, but their total digestibility is reduced due to the presence of protease inhibitors (tannins and fiber) [1]. The amino acids composition is well-balanced if compared to the cereals one, due to a high content in lysine and arginine [1]. For these reasons buckwheat flour is used for formulation of gluten-free products and as high valued ingredient.
In this context, a variety screening focused on the identification of cultivars with high added value is underway, considering the cultivar actually cultivated in North Italy and in other European Countries. The characterization of different buckwheat cultivars may be useful to identify varieties with suitable agronomic and productive characteristics and responding to specific qualitative requirements of the processing industry in Piedmont. Seven different cultivars, such as "*Panda*", "*Lileja*", "*Harpe*", "*Billy*", "*MHR Korona*", "*MHR Smuga*" and "*Misto Tudori*" (a mixture of "*Kora*" and "*Smuglianka*" cultivar) were analysed in their proximate composition and total polyphenol and flavonoid contents. Preliminary results have shown that three cultivars stand out for total dietary fiber ("*MHR Korona*"), lipid ("*Panda*") and total flavonoid content ("*Misto Tudori*"). Further investigation will be carried out on protein quality and the flavonoid composition will be characterize.

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