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NUTRITIONAL CHARACTERIZATION, pH AND ANTIOXIDANT ACTIVITY OF THE PULP OF 29 COLOR-FLESHED POTATOES

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Potatoes (*Solanum tuberosum L.*) is one of the most important food sources for humans due to their high production and nutritional quality, allowing various culinary uses, from domestic cooking to processing into chips and other ready-to-eat snacks. In this work, 29 color-fleshed varieties of potatoes were studied by analyzing their pH, nutritional profile (moisture, nutritional contents of fat, protein, carbohydrates and ash) and antioxidant activity through the thiobarbituric reactive acid substances (TBARS) assay. The samples were classified by a one-way analysis of variance using Tukey's test as post-hoc analysis for homoscedastic samples and Tamhane T2 for no homoscedastic ones, using a significance of 0.05 in both cases. According to the results obtained for nutritional values, protein showed statistically significant differences, with the Lilly Rose variety having the lowest content (1.173 g/100 g) and Highland Burgundy Red having the highest protein content (2.813 g/100 g). Considering crude fat, no significant differences were sought between the 29 varieties. The ash content showed significant differences among varieties, with Lilly Rose having the lowest content (0.509g /100 g) and Highland Burgundy Red having the highest content (1.9 g/100 g). For total carbohydrates few significant differences were detected, with variations being sought only for Blaue Ajanhuiri (13.835 g/100 g) and Highland Burgundy Red (23.302 g/100 g). Moisture was classified in three significantly different groups with Highland Burgundy Red showing the lowest moisture content at 71.86 g/100 g and Lilly Rose the highest, at 83.163 g/100 g. The pH analysis showed statistical variations among the varieties, with the Blaue Neuseeländer having the lowest pH value (pH=5.839) and the Blaue St. Galler the highest (pH=6.331). For the TBARS assay, only the five potatoes (pulp) with highest antioxidant activity were selected for analysis, and, apart from Schwarzer Teufel, the rest of the four potatoes cultivars showed no significant differences among each other. The antioxidant activity (EC_{50}) of Schwarzer Teufel was 0.37 mg/mL

Overall, the results showed a similarity in nutritional values among the tested potato varieties, indicating that beyond their interesting and appealing colors, they also possess valuable nutritional parameters with low variations among the varieties. Furthermore, the Schwarzer Teufel variety showed a very high antioxidant activity compared to the rest of the tested cultivars. Further studies are being performed to analyze the color of these potatoes, as well as bioactivities and chemical composition analyses of their pulp and skin.

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