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Effect of drying method and physical form on antioxidant and antimicrobial activities of grape seed extract

Ayşe Sarıcam and Serap Coşansu Akdemir
Sakarya University, Turkey

The effects of drying methods and physical form on antioxidant and antimicrobial activities of grape seed extracts of Besni and Horoz karasi grape were investigated. Grape seeds were dried in oven or by lyophilization in whole or powdered forms. The total phenolic contents and DPPH (1,1-diphenyl-2-picrylhydrazyl) scavenging activities of grape seed extracts were determined by spectrophotometric methods, while their antimicrobial activities on selected pathogenic bacteria were tested by disc diffusion method. Horoz karasi which is a black grape is a wine grape variety while Besni which is white is a dried grape variety. Generally, the total phenolic contents were higher in grape seed extracts of Besni variety than those of Horoz karasi variety ($P < 0.05$). The results of DPPH radical scavenging activity analyses revealed that the physical form of seeds was significant ($P < 0.05$) and drying as powdered form resulted in higher antioxidant activity than drying as whole. While all grape seed extracts dried as whole or powdered forms inhibition zones against *Staphylococcus aureus*, very few of the samples that dried as powdered showed limited antimicrobial activity against the *Listeria monocytogenes*, *E. coli* O157:H7, *E. coli* Biotip 1, *Salmonella typhimurium* and *Salmonella enteritidis*. As a conclusion, the lyophilization of grape seeds as powdered could minimize the antioxidant activity losses rather than drying as whole or drying in oven. Additionally, the grape seed extracts of Besni and Horoz karasi varieties could be used as a natural antimicrobial to inhibit the growth of *S. aureus* in foods.

Biography

Ayşe Sarıcam has completed her post graduate at the age of 24 years from Sakarya University and she is a PhD student at Sakarya University. At the same time she is working as a research assistant at Sakarya University. Her department is Food Engineering.

asaricam@sakarya.edu.tr

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