

## The storage stability of polyphenols microencapsulated by spray drying using different combinations of coating materials

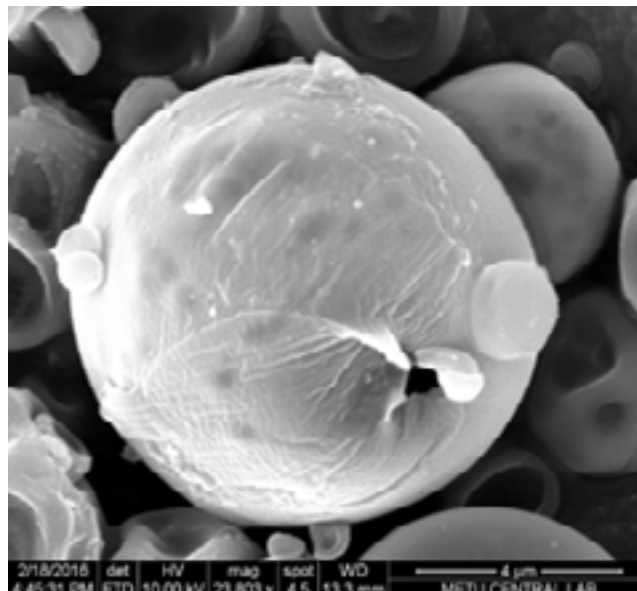
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Polyphenols are natural antioxidants that promote human health by reducing the risk of cancer, boosting immune system, and showing anti-aging and anti-inflammatory properties. However, they can be easily affected by humidity, temperature, light, oxygen, and enzymatic activities. In this work, we aimed to prolong the storage stability of polyphenols obtained from grape pomace under the optimum microencapsulation conditions. A combination of different wall materials, namely maltodextrin (DE4-7 or DE17-20) and gum arabic, was used for spray drying-based microencapsulation. Two different core: coating material ratios (1:1 ve 1:2), three different maltodextrin (MD): gum arabic (GA) ratios (10:0, 8:2 ve 6:4), and four different inlet temperatures (120, 140, 160, 180°C) were studied. The microcapsules obtained under the optimal condition (8:2 ratio of maltodextrin: gum arabic at 140 °C inlet temperature) were stored at two different relative humidity (33% and 52%) during 75 days. The analyses of total phenolic content, antioxidant activity, and individual phenolic compounds were carried out every 15 days, and the most stable microcapsules were achieved with maltodextrin DE4-7 prepared by adding gum arabic to the wall material at the ratio of 8:2. The microcapsules obtained using maltodextrin DE4-7 have demonstrated much better protection and longer-term stability than that

of maltodextrin DE17-20. This could be attributed to the longer chain structure of DE4-7 that enables to coat the core material with higher efficiency. Microcapsules were also comprehensively studied and characterized using scanning electron microscopy (SEM) and high performance liquid chromatography (HPLC) techniques.



### Biography

Aysu Tolun has received her BSc and MSc degrees from the department of Food Engineering at Ankara University in 2000 and 2005, respectively. She worked at quality control departments of several food industries for 10 years. Later on she worked at the Project Information and Support Unit of Ankara University for three years as an expert. She earned her PhD degree from Ankara University in 2016 with her thesis on microencapsulation of bioactive compounds.

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