Poster LSH32

Micronization of Nordic Berries by PGSS

Yacine BOUMGHAR[a], Marzouk BENALI[b]
[a]*CEPROCQ / College of Maisonneuve, Montreal, CANADA;* [b]*CanmetENERGY / Natural Resources of Canada, Varennes, CANADA*

✉yboumghar@cmaisonneuve.qc.ca

The Nordic small fruits are a very-rich source of anthocyanins, polyphenols family know for their human health benefits: lowbush blueberries (*Vaccinium angutisfolium*), lingonberry (*Vaccinium vitis-idaea*), cloudberry (*Ribus chamaemorus*), and camerise (*Lonicera caerulea*) are the most ones targeted in this study. As these berries are seasonal and their shelf life is limited, a dried form is more is more attractive. In the present work, supercritical-fluid assisted micronization is developed as alternative to freeze-drying and spray-drying to reduce the total annualized costs and thermal denaturation, respectively. To make the micronization possible, CO_2 was dissolved in berries extract and static mixer operated at pressure of 8-10 MPa is used to intensify the mixing of berries extract solution with dissolved CO_2. Thus, the homogenized solution is atomized into fine droplets (20-40 micron-meter) within an atmospheric conical vessel operating at low temperature. A series of experiments was performed using various gas-liquid ratios. Micronized uniform berries powders were obtained with narrow size distribution. The resulted berries powder has been analyzed to assess the antioxidant activity using Oxygen radical absorbance capacity (ORAC) method.

The results obtained from the laboratory-scale confirm the applicability of supercritical CO_2 −assisted micronization to produce less dense powder structures with high level of antioxidant activity as compared with conventional spray dryer using hot air as drying agent.