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Easy production of corn zein micro- and nanospheres with the using of Ultrasound

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Zein is a protein of the groups of cereal prolamins, in the case of this protein, found in greater quantity in the endosperms of corn grains, reaching around 8% in this region along with starch. In order to encapsulate the starch globules with the various types of zein, which together with carotenoids in the cross-section of the grains forms a vitreous material with zein and starch that is too hard to withstand physical damage in transports and insect attack. With the development of the extraction process by the group of crude zein from corn gluten bran, this work aims to prepare micro- and nanospheres of zein from this crude zein with the aid of ultrasound to verify if there is a reduction in at a temperature of 25°C. The results of scanning electron microscopy of the zein spheres showed that the reduced about 10% with s between 90 to 550nm. This reduction must be because of the ultrasound vibrations of the drops that can improved with the use of capillary of smaller diameter getting with higher concentration of the nanospheres close to 200nm. In these nanospheres, we want encapsulate jambolan extract to treat the symptoms of herpes zoster on the skin in the body of people affected by this infection, or encapsulate bioinseticides or biofertilizers to control delivery.

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References:

[1] Rodriguez-Félix, F. Food Science and Biotechnology, v. 29, p. 619-629 (2020).