

40. The definition of the emulsion stability of psyllium cellular tissue

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Introduction. One of perspective ingredients for the meat industry is Psyllium cellular tissue. It can be used as a dietary food supplement, as a gel-forming agent and a thickening agent. Psyllium is mostly grown on the western territories of India, such as Rajasthan and Gujarat. The harvest is picked up once a year in winter. The most valuable part of psyllium is outer shelling, which is 26-32% from the general volume. The shelling is sorted according to the level of clarity and the color. It has the ability to take up the water creating the jelly. The jelly is mainly represented with soluble and strongly ramified polysaccharides – arabinoxylans (85%), which are capable to create strong gels. Thanks to this possibility it is perspective and effectually to use this kind of cellular tissue at the meat industry. Psyllium cellular tissue has extremely high ability to tie the water together and accomplish such function for the meat industry:

- The tying up and the skin formation in the bakery wares which contain gluten;
- Substantial effect under the low doses (for example the prolongation of the expiry date);
- The possibility to interact with other functional ingredients;
- The using as a structure-former, a thickener;

The materials and methods. The stability of the emulsion was defined by warming up under the temperature 80° during 30 min and water cooling during 15 min. Then four 50 cm³ centrifuge test tubes were filled with the emulsion and were centrifuged under the rotation frequency 500 c-1 during 5 min. After that the volume of the emulsified layer was calculated.

Emulsion stability, %:

$$CE = V_1/V_2 \cdot 100,$$

where V_1 – the volume of the emulsified oil, cm³;

V_2 – general volume of the emulsion, cm³.

The results. In this work the structure-mechanical abilities of psyllium cellular tissue have been analysed. It was made the SE definition and it was found out that psyllium cellular tissue has the ability to form strong gels close by the degree of the hydration with carrageenan.

Conclusions. Psyllium cellular emulsion in the hydration (1 : 50) showed 16 % less figures ES in the comparison with samples in the hydration 1 : 35. But the figures taken for these emulsions are rather high which allow us to state the high ability of PC to the emulgation. The processes of freezing-untifreezing and heating (warming up till the temperature 80 ± 2 °C in the middle of the product) also positively influence the gels with PC. ES in the sample (PC: water - 1:35) after freezing 5,13 % increases in the comparison with control.

References

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