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Konjac glucomannan based functional food development with collagen

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Collagen is the largest structural protein. Its gelling properties are used in the food industry, similarly as the konjac glucomannan, a polysaccharide, which is used as a functional food ingredient, because of its appetite suppressant effect. Our goal was to develop collagen-enriched chocolate flavored konjac puddings in ready and powdered form. The sample matrix contained six types of puddings: three in liquid form (cow's milk, rice milk and coconut milk) and three powder textured. After building up and optimizing the recipes pH, color, water activity, gel electrophoresis measurements and sensory analysis were executed on the samples. We examined the differences between the samples regarding their types (conventional/plant based) and bases (liquid/powder). The results of the color measurement showed that from the six samples the largest color difference was between the products which were made with coconut milk and from coconut milk powder ($\Delta E^* = 11.10$). The pH was slightly basic in the products which were made with coconut milk and rice milk powder (pH=7.17 and pH=7.01). The lowest water activity had the sample which was made with rice milk ($a_w = 0.89$). A gel image characteristic of the protein composition after the electrophoresis was in accordance with expectations. Results of the sensory tests indicated that the appearance of the sample made from cow milk powder got 33% higher scores than sample which was made from rice milk. The overall impression was 47% worse of the product, which was made of rice milk compared to the sample made from coconut powder. Summarizing the results, it can be said that more than 60% of the participants were satisfied with the finished products. As conclusion of this work we believe that the collagen-enriched functional food developments can have a promising future in Hungary, however further investigations and experiments are required to develop a product with attractive nutritional, microbiological and organoleptical properties.