

Abstract

While interest in plant-based alternatives to animal foods has been growing significantly in recent years, the question is to what extent these plant-based foods are able to replace animal products – both in terms of nutrition and organoleptic properties.

The aim of this study was to nutritionally and sensorially evaluate 18 samples of plant-based alternatives compared to 14 samples of dairy products of the same type. The samples of the plant-based alternatives were subjected to chemical analysis, where their composition in terms of water, protein, calcium, fat and individual fatty acid content was examined by analytical methods.

The water content of the plant-based alternatives to dairy products was determined to be in the range 39-89 %, which corresponds directly to the physical nature of the samples. The protein content determined for the plant-based dessert and plant-based yoghurt ranges from 0,7-4,3 g/100 g. For plant-based cheese alternatives, calcium values were determined between 9 and 330 mg/100 g. The fat determined in all vegetable samples ranges from 1-27 g/100 g. The fatty acid profile of the samples was highly variable, with saturated fatty acids predominating in the presence of coconut fat, and unsaturated fatty acids predominating in products based on sunflower or rapeseed oil. None of the samples had a level of trans fatty acid isomer that was nutritionally significant.

In the nutritional evaluation, it can be stated that the vegetable samples contain less protein than the dairy samples, the calcium content of the vegetable products is significantly lower than in the dairy products, and the fat content of both sets was very similar. The fatty acid composition of the coconut-based products could be described as rather unfavourable due to their high saturated fatty acid content, but the samples based on other oils (e.g. rapeseed) show a high unsaturated fatty acid content. Some samples were found to contain significant levels of omega-3 fatty acids, which are negligible in milk fat. The presence of antinutrients, which significantly affect the availability of some nutrients, was also taken into account. The sensory evaluation revealed major deficiencies of the plant-based alternatives in the form of the presence of aftertaste, bitter taste, pleasant texture and aroma. It can be concluded that the plant-based alternatives to dairy products analysed so far are of lower nutritional and sensory quality.