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Testing different fibres as a replacement of typical hydrocolloids in innovative food product formulation

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Over the past few years, there has been a significant surge in consumer demand for products that have reduced fat content and additional health benefits. One of this type of food product is cheese sauce. While cheese can be a valuable source of protein and calcium, it is also commonly high in saturated fat and sodium. The objective of the study was to investigate the impact of beetroot and carrot fibers on the physicochemical and rheological properties of processed cheese sauces that were prepared using whey protein concentrate (WPC80), acid casein (AC), and different fat sources. There is still a lack of understanding regarding the interactions between the fiber and the components of cheese sauce. Studies have been carried out on features such as hardness, adhesiveness and surface roughness. This rheological properties are important due to their impact on the consistency, flavor, and overall quality of the product. On the other hand the storage (G') and loss (G'') moduli represent the stiffness and viscosity of the sauce, respectively, and are measures of its ability to resist deformation under applied stress. Further research in this area could lead to the development of new and innovative formulations.

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Why measured osmolality of alcoholic beverages does not reflect their true tonicity and how better estimate of their effective osmolality might be obtained

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In the scientific literature it is very common to determine osmolality of alcoholic drinks with the use of cryoscopic measurements. This kind of measurements evaluates osmolality from the determined lowering of the freezing point of the alcoholic drink when compared to the freezing point of distilled water. In alcoholic drinks a significant portion of the lowering of the freezing point might be due to the presence of ethanol in beverages. Consequently, the measured osmolalities increase with the alcohol content. However, in these studies the researchers overlook the fact known to medical doctors that the cell membranes of humans, similarly to other eucaryotes, are permeable to ethanol and hence the ethanol does not act as an effective solute contributing to tonicity in human bodies. In order to obtain a better estimate of the effective osmolality it is therefore needed to subtract the contribution of the ethanol to the lowering point. Although such a correction is not perfect, it still shows that, for example, that alcohol containing beers are unjustifiably accused to be highly hypertonic and that they have effective osmolalities similar to the one of alcohol-free beers.