Abstract

Proteins for the future – differences in animal and plant protein
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The demand for plant-based milk alternatives have recently increased in many countries. These changes in consumer attitudes are mainly a result of increasing focus on sustainability and environmental fingerprint. This has led to an expanding availability of multiple dairy alternatives on the Danish market, mainly based on almond, rice, oat and soy. A comparison of dairy and plant-based beverages shows that the CO2 emission per liter beverage is significantly lower for plant-based beverages, though the CO2 emission per amount of protein is significantly lower for milk compared to plant-based beverages. Not alone is the amount of protein higher in milk, but also the content of essential amino acids, as well as the protein digestibility and bioavailability. The Food and Agriculture Organisation (FAO) has introduced a score, which gives an estimate on protein digestibility and amount of essential amino acids, called Digestible indispensable amino acid score (DIAAS). In a comparison of dairy protein and selected plant protein sources, only the dairy proteins had a DIAAS ratio above 1.00, which is the criteria for an excellent protein source. Plant originating proteins are simply low in essential amino acids. Methionine and cysteine are limiting in almond, pea and soy, whereas lysine is limiting in rice and soy, meaning that even mixing different plant drinks will often not solve this deficiency completely. If we look at price per amount of protein, rice protein is approx. 60 times as expensive as milk protein, and oat protein is 20 times as expensive, a quality which deserves to be more widely recognized. Future discussions on how we mitigate the climate changes by our choices of food – even though it is complex – needs to be based on land use, greenhouse gas emission and water consumption, but it is also crucial to consider protein quality and nutritional density.