Practice Abstract #13

TRansition paths to sUstainable legume-based systems in Europe

Development and processing of protein rich vegetable foods

Legumes are extremely useful for high protein products such as pasta, snacks and so-called meat analogues (products that are similar to meat, but suitable for vegetarian or vegan consumers). The main technology used and suitable for various applications in this field, is called extrusion.

During extrusion, starchy or proteinaceous foods with moisture content ranging from 15 to 35% are subjected to high temperature, high pressure and intensive mechanical shear forces. Under these conditions, the biopolymer-based raw materials are converted in a heated barrel into 'viscoelastic melts', which are further forced to flow through a die. Due to the pressure drop across the die and the subsequent conversion of high-temperature water to steam, the molten stream at the exit expands dramatically to give the desired expanded/cooked product.

The resulting extrudates can be used in protein-rich cereals or as additives for chocolate and bars. Some of them have been successfully tested as meat replacement ingredients for sports nutrition products and as the basis for vegan meatballs, burger patties, cooked meatballs or sauce Bolognese.

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Preliminary results obtained within TRUE on the characterisation of the processing properties of protein-rich legume flours for extrusion demonstrated how certain raw material parameters influence the process parameters of extrusion. These findings could be used to develop legume-based protein products for consumers who pursue a healthy, nutritionally aware, sustainable lifestyle.

AMINO-Crispies, -Flakes, -Nuggets and -Pasta. *Photo credits ©: Institut für Getreideverarbeitung (IGV)*

About TRUE

The EU funded project "TRansition paths to sUstainable legume based systems in Europe" (TRUE) is a balanced practice-research partnership of 24 institutions, which aims to identify the best routes, or "transition paths" to **increase sustainable legume cultivation and consumption across Europe** and includes the entire legume feed and food value chains.

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All Pratice Abstracts prepared by the TRUE Project in the EIP-Agri common format can be found here: https://ec.europa.eu/eip/agriculture/en/find-connect/projects/transition-paths-sustainable-legume-based-systems

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