
Structure-function-application of plant proteins in meat and dairy analogues

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Plant proteins have complex structures at various lengths, which govern their application in plant-based protein foods, including meat and dairy analogues. This presentation provides the current understating of how the molecular size/weight, secondary structure, crystalline structure, charge, and presence of sulfhydryl and disulphide bonds affect the functionality (solubility, foaming, emulsion, gelling, pasting and rheological) of isolated proteins and how these are related to the property of high -moisture extrusion cooked meat and fermented dairy analogues prepared from lentils, mungbean and lupins compared to commercially available soy and pea proteins. Further, the effect of extraction and drying techniques on the techno-functional properties will be articulated. Finally, the manipulation of protein structure (e.g. extrusion conditions, non-thermal processing of proteins) for achieving the desired product functionality, e.g. texturization in meat analogues or firmness in dairy analogues, will be presented.