

Increasing Market Competitiveness and Adding Value to Soy Ingredients for Improved Plant-Based Meat Applications

Mid-Term Progress Report - January 2023/ Supplementary Data

Table 1. Six total treatments were formulated with 3 targeting a beef patty analogue and 3 targeting a fish filet. Cold and heat swelling proteins were used along with starch ingredients to use functionality to modify and control texture. Functionality is represented by the cold swelling/heat swelling (CS/HS) ratio.

LEGEND

Base Ingredients						
Modifying Ingredients						
Experimental Treatments (%)	Beef Analogue			Fish Analogue		
	<i>Soy/Pea</i>	<i>Soy</i>	<i>Soy/Wheat</i>	<i>Soy/Pea</i>	<i>Soy</i>	<i>Soy/Wheat</i>
	1	2	3	4	5	6
<i>Soy protein isolate</i>	10	20		30	30	20
<i>Soy protein concentrate (Arcon F)</i>	30	50	40		30	
<i>Soy protein concentrate (Arcon S)</i>		10		30	30	20
<i>Pea protein isolate</i>	40			30		
<i>Vital wheat gluten</i>			40			40
<i>Soy flour</i>	10	20	20	10	10	20
<i>Tapioca starch</i>	10					
Protein Content %	66.7	69.7	67	78.2	74.9	72.4
Texture expectations	soft	medium	firm	soft	medium	firm
CS/HS Ratio	50/50	30/70	0/100	90/10	60/40	40/60

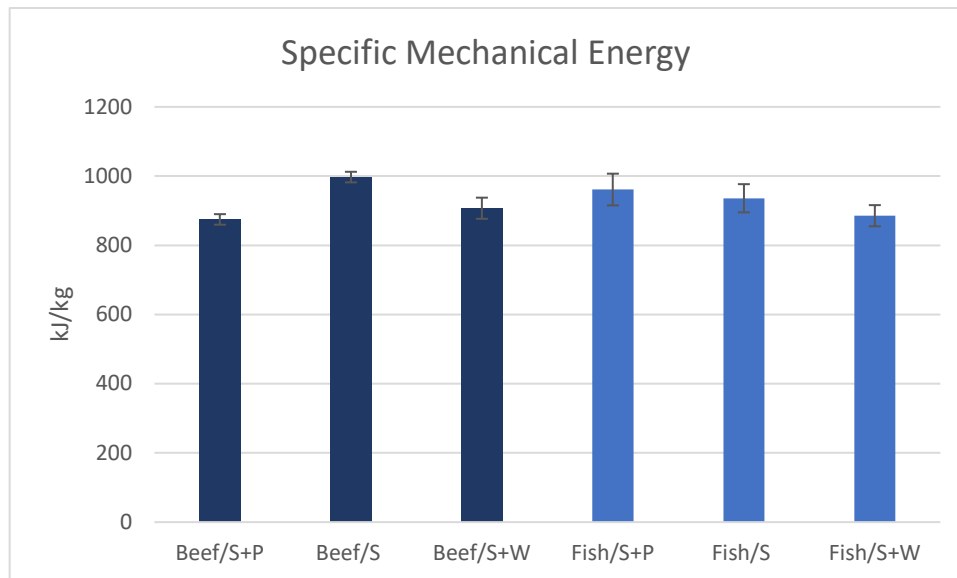


Figure 1. Specific mechanical energy (SME) represents the mechanical energy input for each treatment during pilot-scale extrusion processing. Treatments for beef and fish analogues were each based on different ingredients e.g. soy and pea (S+P), soy only (S), and soy and wheat (S+W).