

Conclusion: Wood decomposing fungi can synthesize different types of biologically active substances including amino acids, proteins, phenolic compounds. CEs extracted from these fungi have showed the stimulatory effect on the germination rate of tomato seeds (*Solanum lycopersicum*, cv. Dubrava), biosynthesis of biomass and biosynthesis of chlorophylls a, b and carotenoids.

References

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THE EFFECT OF TEMPERATURE ON THE FUNCTIONAL PROPERTIES OF PHASELOUS LUNATUS FLOUR AND ITS PROXIMATE COMPOSITION*

Keywords: Flour, Temperature, Proximate composition, Functional properties.

Legumes serve as the main source of plant protein and as such often used as a supplement with cereal flours in food productions. Different legumes have different functional properties that determine how they will be formed when processed to foods. Christmas Lima bean (*Phaseolus lunatus I*) is a leguminous herbaceous plant from the family *Fabaceae*. It has a buttery texture and flavour, resulting in its common name "butter bean" [1].

This work evaluated the proximate composition and functional properties of full fat flour, defatted flour and protein concentrate from Christmas lima bean (*Phaseolus lunatus*) in addition to how temperature affects some of the functional properties of the full fat and defatted flour samples. From table 1 the protein concentrate was found to have 55.17 % protein and showed a significant difference ($p \leq 0.05$) from the full fat and defatted flours with mean values of 20.85 % and 28.42 % protein, respectively.

Table 1

Mean values of the proximate composition of Christmas lima bean flour samples

FLOUR SAMPLES	Moisture %	Protein %	Ash %	Crude fat %	Crude Fibre %	CHO %
Full fat	9.00 ^b ±1.0	20.85 ^d ±0.2	4.70 ^a ±0.26	0.87 ^a ±0.005	0.54 ^a ±0.02	62.76 ^a ±0.02
Defatted	11.00 ^{ab} ±1.73	28.42 ^b ±0.7	3.53 ^b ±0.15	0.12 ^b ±0.15	2.63 ^b ±0.65	54.33 ^b ±0.15
Protein Concentrate	2.00 ^a ±1.32	55.17 ^a ±0.6 0	4.53 ^a ±0.15	0.08 ^c ±0.15	0.00 ^c ±0.00	28.13 ^c ±0.04
LSD	0.39	0.81	0.39	0.03	0.19	

From table 2 the defatted flour was also found to exhibit better functional properties with emulsion capacity, bulk density, swelling index, water and oil absorption capacities higher than the full-fat flour. The effect of temperature on swelling index and foaming capacity showed increasing functionality with an increase in temperature.

Table 2

Mean values of the functional properties of the full fat and defatted flour from Christmas lima bean

FLOUR SAMPLE	EC (%)	BD (g/cm ³)	GT °C	WA g/ml	OA g/ml	FC %	WT s	SI g/cm
Full fat	82.30 ^b	2.80 ^b	67 ^a	1.83 ^b	2.76 ^b	34.60 ^a	47 ^b	1.78 ^b
Defatted	89.17 ^a	4.23 ^a	40 ^b	2.32 ^a	3.50 ^a	25.5 ^b	180 ^a	2.15 ^a
LSD	0.20	0.29	1.85	0.15	0.23	0.20	14.39	0.14

Key: EC = Emulsion capacity, BD = Bulk density, GT = Gelation temperature, WA = Water absorption, OA = Oil absorption, FC = Foam capacity, WT = Wettability, SI = Swelling index

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