COMBINING EFFECT OF BLACK-EYED PEA *(VIGNA UNGUICULATA)* PROTEIN CONCENTRATE AND MICROBIAL TRANSGLUTAMINASE ON GEL PROPERTIES OF SURUMI FROM TILAPIA *(TILAPIA NILOTICUS)*

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Texture is an essential attribute of foods and hydrocolloid is useful in modifying the texture of mince products. The present study investigated the combining effect of black-eyed pea (Sinhala; cowpea) (*Vigna unguiculata*) protein concentrate and microbial transglutaminase (MTGase) on gel properties of surumi from Tilapia (*Tilapia niloticus*). Surumi was prepared from cold water washed tilapia mince. Black-eyed pea protein concentrate (BPPC) was separated from raw and sprouted (8 h soaked and 16 h germinated) seed flour (250-mesh) by extracting twice from water 1:4 and 1:8 ratio (flour: water w/w) (adjusted PH 8.0 with 0.1M NaOH), respectively. Collected supernatants were acidified (adjusted PH 4.3 with 1NHCl) and the resulted precipitate was freeze dried to obtain powder of both concentrates. 70% of surumi was mixed with 0, 0.5, 1.0, 1.5, 2.0%, of BPPC (w/w) and ice water was added until moisture level reached to 80%. Polyphosphate (0.3%), MTGase (0 and 0.2 U/g) and salt (2%) were added and the resulting sol was stuffed (diameter 2.5 cm) and cooked. Respected products were tested for gelling properties, water holding capacity and microstructure. Results showed that water-holding capacity of gels had been improved with increasing level of BPPC and MTGase. Further, hardness, gumminess and chewiness of the gels had increased but no significant difference was observed among raw and sprouted seed protein concentrates. A mixture of 70% surumi, 1.5% BPPC, and 0.2 (U/g) MTGase built strong proteins matrices and that was confirmed by its microstructure.

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Keywords: Black-eyed pea, Gel properties, Germination, Tilapia surumi, Transeglutaminase, germination