

ABSTRACT

A common problem in countries like Indonesia is stunting, which is mainly due to protein deficiency. Therefore, novel, affordable, and sustainable protein sources are needed. This thesis examines the possibility of water lentils, a new plant – based protein source, mixed with Modified Cassava Flour (MOCAF) as crackers. The local, accessibility, and sustainability aspects of water lentils, cassava and MOCAF make them suitable in this product development.

The main focus of this topic was to fortify protein in the formulation of locally produced crackers made from MOCAF. This research was done by analysing the moisture content during drying water lentils at 70°C in different time periods to fulfil the national standard requirement of wheat flour to have a maximum moisture of 15%; The goal of the experimental drying was below 15%; Water lentil batch drying was performed to make the water lentil powder (WLP) resulting in approximately 7.624% moisture, suitable enough for use as flour. Fresh water lentils had an average of 3.449% protein, whereas dried water lentils 22.7803% protein. Drying made a notable but not significant increase to the protein content of water lentils due to the water percentage loss. Formulations were a negative control or blank cracker, H0n (0.1% WLP), H1n (0.25%), and H2n (0.5% WLP) with average protein contents of 2.125, 2.243, 2.464, and 2.961% respectively. The addition of WLP to MOCAF crackers have made an insignificant increase in the overall protein content. These statistical insignificances may be caused by the lack of samples. However, further research can be made to develop higher protein or fibre foods with MOCAF and duckweed as raw materials, along with safety analyses like shelf life, microbiological tests, and heavy metal analyses. Moreover, it is recommended to have more repetitions and replications to obtain more data for statistical analyses.

Keywords: alternative protein, cereal science, crackers, Lemna minor, MOCAF, pastry technology, sustainability, water lentils