Aquatic Biocompound-based Functional Instant Porridge for Ischemic Stroke Survivors

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Stroke is a severe neurological disease that affects many people around the world. Post-stroke dysphagia complications can lead to malnutrition, which further complicates the problem. Addressing this issue, we proposed Aquatic Biocompound Instant Porridge (ABIP), a porridge made from layang fish (Decapterus sp.), brown seaweed (Sargassum sp.), and low-glycemic sorghum flour. We aim to evaluate the physicochemical characteristics, safety, effectiveness in reducing plasma malondialdehyde (MDA) levels in the white rat model of ischemic stroke and the sensory characteristics of ABIP. We prepared five different compositions of sorghum flour, layang fish, and brown seaweed (T1, T2, T3, C(+), and C(-)). Fourier Transform Infra-Red analysis revealed the presence of fucoidan's functional groups in dried brown seaweed. We found the bulk density of ABIP decreased as the amount of brown seaweed and layang fish flour increased, and the amount of sorghum flour decreased. Water absorption capacity of T1, T2, and T3 was better than C(+), consistent with rehydration time. However, they still need further improvement regarding solubility. Proximate analysis indicated that T1, T2, and T3 had optimal quantities except for water and fat content. In vivo testing showed that white rats' oxidative stress because of ischemic condition decreased, as indicated by MDA levels, with average plasma MDA for T1-T3 lower than C(+). Sensory results showed that all treatments were insignificant regarding color, texture, aroma, and taste parameters. T1 showed a significant value regarding ease of swallowing, indicating ABIP is easy to swallow. ABIP is indicated as safe based on total plate count analysis.

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