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## Proximate composition, minerals contents, functional properties of mastura variety jackfruit (*Artocarpus heterophyllus*) seeds and lethal effects of its crude extract on zebrafish (*danio rerio*) embryos (Article) (Open Access)

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### Abstract

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Jackfruit (*Artocarpus heterophyllus*) is a popular and valuable fruit in Malaysia. The present study aims to determine the proximate composition, mineral contents and functional properties of jackfruit seed powder (JSP) of Mastura cultivar and assess the toxicity of the jackfruit seed crude extract using embryonic zebrafish model. The proximate analysis results obtained showed that the JSP had 69.39% carbohydrate, 13.67% protein, 10.78% moisture, 2.41% ash, 0.75% fat and 3.00% crude fiber. The energy value reported was 345 kcal/100 g. Most abundant mineral found in the JSP was potassium (7.69 mg/g) followed by phosphorus (1.29 mg/g), magnesium (1.03 mg/g), calcium (0.41 mg/g) and sodium (0.05 mg/g). Water absorption capacity (2.35 g/g), oil absorption capacity (1.14 g/g) and bulk density (0.67 g/cm<sup>3</sup>) were recorded for the JSP. The values for swelling power and solubility were 4.12 and 9.98, respectively. Furthermore, the various concentrations of jackfruit seed crude extract showed lethal developmental effects against zebrafish embryos during 96 hrs of exposure duration. Increased mortality was observed in embryos after exposure to concentrations above 15.625 µg/mL in dose and time-dependent manner. Based on the results, it can be concluded that JSP has great potential to be utilized in the formulations of food and other functional products. Additionally, the presence of toxic effects in the crude extract of JSP indicates the future studies required in isolating and identifying the compounds that might be responsible for the toxicity. © 2019 The Authors. Published by Rynnye Lyan Resources.

### SciVal Topic Prominence ⓘ

Topic: Functional properties | Protein isolates | Foaming capacity

Prominence percentile: 93.932



### Author keywords

Artocarpus heterophyllus Functional properties Jackfruit seeds Mineral content Proximate analysis Zebrafish embryotoxicity test

### Indexed keywords

EMTREE drug terms:

aluminum artocarpus heterophyllus extract boron calcium carbohydrate copper fat iron magnesium manganese mineral phosphorus plant extract potassium protein sodium unclassified drug zinc

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Chemicals and CAS Registry Numbers:




aluminum, 7429-90-5; boron, 7440-42-8; calcium, 7440-70-2, 14092-94-5; copper, 15158-11-9, 7440-50-8; iron, 14093-02-8, 53858-86-9, 7439-89-6; magnesium, 7439-95-4; manganese, 16397-91-4, 7439-96-5; phosphorus, 7723-14-0; potassium, 7440-09-7; protein, 67254-75-5; sodium, 7440-23-5; zinc, 7440-66-6, 14378-32-6

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