

## **Biofunctional characteristics of dietary fibre from Malaysian *Ziziphus mauritiana* leaves**

### **ABSTRACT**

*Ziziphus mauritiana* derived from Rhamnaceae family plant (known as Bidara tree in Malaysia) has been consumed by Malaysian through processing the fruit into pickles or eating it fresh, while the leaves are commonly used in traditional medicine especially in Islamic medicine. However, *Z. mauritiana* plants are still underutilized in Malaysia as a lack of scientific information about its health promoting effect. Hence the study was aimed to investigate several properties related to its nutritional quality of the new cheap sources of dietary fiber (mucilage) which is needed in developing countries to maintain population health, especially in controlling diabetes. The extraction yield of mucilage was investigated from *Z. mauritiana* fruit pulp and leaves. The higher mucilage yield was obtained from the leaves with 1.24%, while the mucilage from the pulp yielded 0.34%. The mucilage of *Z. mauritiana* leaves with good hydration properties of swelling capacity ( $6.867\text{ml/g} \pm 0.231$ ), water holding capacity ( $3.960\text{g/g} \pm 0.200$ ), oil holding capacity ( $0.507\text{g/g} \pm 0.083$ ) and its emulsifying properties including emulsifying activity ( $56.0\% \pm 4.00$ ) and emulsifying stability ( $70.87\% \pm 2.31$ ) indicate that it may have the capability in controlling the diabetes. Fourier transform infrared (FT-IR) spectroscopy and scanning electron microscopy (SEM) analysis revealed the structural characteristic of the extracted *Z. mauritiana* mucilage. These properties make the crude mucilaginous fraction from *Z. mauritiana* leaves a remarkable candidate as potential dietary fiber for functional food and nutraceutical.

**Keyword:** *Ziziphus mauritiana*; Dietary fibre (mucilage); Functional characteristics; Antidiabetic