ABSTRACT

Mangosteen (Garcinia mangostana), a tropical fruit highly studied because of its potent antioxidant activity, has been utilized as supplements to alleviate chronic diseases related to oxidative stress such as cardiovascular diseases, neurodegenerative diseases, diabetes, and others. Regardless, previous studies evaluating mangosteen antioxidant activity in vivo showed conflicting results toward oxidant-related diseases, and extensive review summarizing its antioxidant effect on oxidant-related diseases was not available. Based on these, the study aimed to systematically evaluate scientific evidence regarding mangosteen antioxidant activity on animal model and clinical trials about its role in improving oxidant-related diseases was carried out. Results showed that administration of either mangosteen extract, isolated compound, or commercialized products was able to increase antioxidant enzymes such as superoxide dismutase (SOD), catalase (CAT), glutathione peroxidase (GPx), and reduce oxidative stress marker such as malondialdehyde (MDA). They were also shown contributing to the improvement of disease-related parameters in type II diabetes models, cardiovascular models, neurological disorder models, liver and kidney injury models, and stress-induced models. However, in clinical trials, most of the studies used commercialized mangosteen-based products that contain additional antioxidant compounds. Therefore, the results were deemed inconclusive and more clinical studies of mangosteen antioxidant activity in oxidant-related diseases are needed.

Keywords: Mangosteen, *Garcinia mangostana*, Antioxidant, Oxidative stress