

Protective Effects of *Nypa fruticans* Wurmb against Oxidative DNA Damage and UVB-induced DNA Damage

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Nypa fruticans Wurmb (*N. fruticans*) is a plant that belongs to Araceae and *N. fruticans* is mainly found in tropical mangrove systems. The parts (leaves, stems, and roots) of *N. fruticans* are traditionally used for asthma, sore throat, and liver disease. *N. fruticans* contains flavonoids and polyphenols, which are substances that have inhibitory effects on cancer and oxidant. In previous studies, some pharmaceutical effects of *N. fruticans* on melanogenesis and inflammation have been reported. The present study is conducted to investigate the effect of the ethyl acetate fraction of *N. fruticans* (ENF) on oxidative DNA damage and UVB-induced DNA damage. DNA damage response (DDR) pathway is important in research on cancer, apoptosis, and so on. DDR pathways are considered a crucial factor affecting the alleviation of cellular damage. ENF could reduce oxidative DNA damage derived from reactive oxygen species by the Fenton reaction. Also, ENF reduced the intensity of intracellular ROS in the live cell image by DCFDA assay. UVB is known to cause skin and cellular damage, then finally contribute to causing the formation of tumors. As for the strategies of reducing DNA damage by UVB, inhibition of p53, H2AX, and Chk2 can be important indexes to protect the human body from DNA damage. As a result of confirming the protective effect of ENF for UVB damage, MMPs significantly decreased, and the expression of apoptosis-related factors tended to decrease. In conclusion, ENF can provide protective effects against double-stranded DNA break (DSB) caused by oxidative DNA damage and UVB-induced DNA damage. These results are considered to be closely related to the protective effect against radicals based on catechin, epicatechin, and isoquercitrin contained in ENF. Based on these results, it is thought that additional mechanism studies for inhibiting cell damage are needed.

Key words: DNA damage, Double-stranded DNA break, UVB, *Nypa fruticans* Wurmb

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