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Poster Sessions

Antihypertensive effects of flaxseed and its mechanism of action in deoxycorticosterone acetate-salt hypertensive rats Yusuke Watanabe¹, Hiroe Toba¹, Miyuki Kobara¹, Tetsuo Nakata¹¹*Department of Clinical Pharmacology, Division of Pathological Sciences, Kyoto Pharmaceutical University*

Flaxseed is a functional food containing α -linolenic acid, lignans, and dietary fiber, and its intake is known to lower blood pressure in hypertensive rat models and hypertensive patients. However, the mechanisms of action of flaxseed have not been fully elucidated. In this study, we examined the effects of flaxseed powder, which includes all flaxseed components, flaxseed oil, comprised mainly of α -linolenic acid, flaxseed lignan, and flaxseed fiber on hypertension induced by deoxycorticosterone acetate (DOCA)-salt to elucidate the components associated with the antihypertensive effects. Then, we investigated the mechanisms of action associated with the effects of flaxseed powder and flaxseed oil. The intake of flaxseed powder and flaxseed oil prevented the elevation of blood pressure induced by DOCA-salt treatment, whereas flaxseed lignan and flaxseed fiber had no effects. Flaxseed powder and flaxseed oil suppressed the sympathetic nerve activity in DOCA-salt rats. In contrast, neither flaxseed powder nor flaxseed oil affected plasma and kidney ACE activity or MDA levels in the kidney. These results indicate that flaxseed has antihypertensive effects in DOCA-salt hypertensive rats. These effects are likely principally exerted by α -linolenic acid, the main component of flaxseed. Furthermore, modulation of the autonomic nervous system is partly involved in the antihypertensive effect of flaxseed.