

Amomum villosum var. *xanthioides*의 에틸아세테이트 분획물이 항산화 활성을 통한 간 소포체 스트레스 유발 비알코올성 지방간 저해

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Ethyl Acetate Fraction of *Amomum villosum* var. *xanthioides* Attenuates Hepatic Endoplasmic Reticulum Stress-Induced Non-Alcoholic Steatohepatitis via Enhancement of Antioxidant Activities

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Non-alcoholic fatty liver disease (NAFLD), especially including non-alcoholic steatohepatitis (NASH) is one of the common diseases with 25% of prevalence globally, but there is no therapeutic access available. *Amomum villosum* var. *xanthioides* (Wall. ex Baker) T.L.Wu & S.J.Chen (AX), which is a medicinal herb and traditionally used for treating digestive tract disorders in Asia countries. We aimed to examine pharmacological effects of ethyl acetate fraction of AX (AXEF) against ER stress-induced NASH mice model using C57/BL6J male mice by tunicamycin (TM, 2 mg/kg) injection focusing on the oxidative stress. Mice were orally administrated AXEF (12.5, 25, or 50 mg/kg), silymarin (50 mg/kg) or distilled water daily for 5 days, and outcomes for fatty liver, inflammation, and oxidative stress were measured in serum or liver tissue levels. AXEF drastically attenuated hepatic ER stress-induced NASH which were evidenced by decreases of lipid droplet accumulations, serum liver enzymes, hepatic inflammations, and cell death signals in the hepatic tissue or serum levels. Interestingly, AXEF showed potent antioxidant effects by quenching of reactive oxidative stress and its final product of lipid peroxide in the hepatic tissue, specifically increase of metallothionein (MT). To confirm underlying actions of AXEF, we observed that AXEF increase MT1 gene promoter activities in the physiological levels. Collectively, AXEF showed antioxidant properties on TM-induced ER stress of NASH by enhancement of MTs.

Key words: *Amomum villosum* var. *xanthioides* (Wall. ex Baker) T.L.Wu & S.J.Chen, Endoplasmic stress, Non-alcoholic steatohepatitis, Oxidative Stress, Metallothionein

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