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Aldose reductase inhibitors of plant origin in the treatment and prevention of fatty liver disease

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Fatty Liver Disease (FLD) is a growing public health problem worldwide. The requirement for alternative and natural medicine has been increasing rapidly and considerably. Recently, Aldose Reductase (AR)/polyol pathway has been reported to be involved in the development of FLD, therefore it is of interest to study the effect of plant-derived AR inhibitors on FLD. By conducting some investigations and by reading through literatures regarding AR inhibitors and FLD, we propose that plant-derived AR inhibitors may block AR/polyol pathway and in turn reduce the fructose production and the subsequent fat accumulation in liver in diabetic or high glucose diet-fed mice. Moreover, we propose that in rodents with alcoholic liver disease or non-alcoholic fatty liver disease/nonalcoholic steatohepatitis, AR inhibitors may improve PPARα-mediated fatty acid oxidation and reduce hepatic steatosis, and may attenuate CYP2E1-mediated oxidative stress or AR/gut bacterial endotoxin-mediated cytokines overproduction to alleviate progression of FLD. We conclude that potent AR inhibitors of plant origin may be efficient drugs for the treatment and prevention of FLD.

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