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Cichorium intybus L. decreases the serum uric acid level in fructose-induced hyperuricemia by inhibiting the reabsorption of renal transporters

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Hyperuricemia is a chronic metabolic disease which caused by excessive production or impediment excretion of uric acid. The kidney plays an important role in uric acid excretion which contains the handling process of reabsorption and secretion. A series of renal uric acid transporters is responsible for the two processes, mainly including reabsorption transporters URAT1 and Glut9 as well as secretion transporters OAT1 and OAT3. Excessive intake of fructose may result in elevated serum uric acid levels. *Cichorium intybus* L., commonly known as Chicory, has been used as an edible vegetable and a traditional remedy which function as diuresis, detumescence and cholagogue. Our previous studies found chicory had an effect on treating hyperuricemia which correlate with decreased production and increased intestinal excretion. Currently, we evaluated the mechanism of its uricosuric effect via renal pathway. Hyperuricemia rats induced by 10% fructose solution were treated with chicory at three doses and benzbromarone, respectively. Chicory decreased the serum levels of uric acid and creatinine and promoted the clearance rates of creatinine and uric acid, as well as improved renal pathological changes in hyperuricemia rats. Further examination illustrated that chicory inhibited the mRNA and protein expressions of URAT1 and GLUT9 markedly in a dose-dependent manner whereas showed no influence in the mRNA and protein expressions of OAT1 and OAT3. Taken together, chicory might be a promising anti-hyperuricemia agent to promote uric acid excretion in the kidney via inhibiting renal reabsorption which may relate with down-regulation of mRNA and protein expression levels of URAT1 and Glut9.

Biography

Yu Wang has her expertise in evaluation and passion in improving metabolic disorders by traditional Chinese medicine. Her studies focus on the excretion pathway of hyperuricemia and assess the pharmacodynamics of *Cichorium intybus* L., a dietetic herb frequently used in Chinese medicine and nutrition in lowering serum uric acid levels.

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