

Investigation on Stability of Myricitrin by a Validated HPLC Method

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SUMMARY. Myricitrin is a natural occurring flavonoid glycoside and possesses strong antioxidant activity. However, the presence of multiple hydroxyl groups in its structure contributes to instability. In the present study, the stability of myricitrin under different conditions was investigated and appropriate means of improving it were explored. The content of myricitrin was determined by reversed phase-high performance liquid chromatography to examine the stability of myricitrin in hydrogen peroxide, sodium sulfite, food additives, simulated gastrointestinal fluids, ascorbic acid and so on. The results proved that myricitrin was extremely unstable in alkaline conditions or the presence of reducing agents and completely degraded after a few minutes. Subsequently, it was observed that ascorbic acid may significantly increase the stability of myricitrin by protecting the former from degradation. Study on the stability of myricitrin for prospectively preserving, developing and utilizing myricitrin in the functional food, cosmeceutical, nutraceutical and pharmaceutical products is necessary.

RESUMEN. La miricitrina es un glucósido flavonoide natural y posee una fuerte actividad antioxidante. Sin embargo, la presencia de múltiples grupos hidroxilo en su estructura contribuye a la inestabilidad. En el presente estudio, se investigó la estabilidad de la miricitrina en diferentes condiciones y se exploraron los medios apropiados para mejorarla. El contenido de miricitrina se determinó mediante cromatografía líquida de alta resolución de fase inversa para examinar la estabilidad de la miricitrina en peróxido de hidrógeno, sulfito de sodio, aditivos alimentarios, fluidos gastrointestinales simulados, ácido ascórbico, etc. Los resultados demostraron que la miricitrina era extremadamente inestable en condiciones alcalinas o en presencia de agentes reductores y se degradaba completamente después de unos minutos. Posteriormente, se observó que el ácido ascórbico puede aumentar significativamente la estabilidad de la miricitrina al proteger a la primera de la degradación. Es necesario estudiar la estabilidad de la miricitrina para conservar, desarrollar y utilizar prospectivamente la miricitrina en los productos alimenticios funcionales, cosmeceúticos, nutracéuticos y farmacéuticos.

KEY WORDS: ascorbic acid, food additives, high performance liquid chromatography, myricitrin, stability.

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