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Mechanism of *Schisandra chinensis* Curing PCPA Induced Insomnia Rats by Regulating Tyrosine Metabolism Pathway

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SUMMARY. **Insomnia is a common sleep problem, which is difficult to cure, easy to affect people's health and quality of life. Schisandra chinensis (SC) has been used as a sedative and hypnotic agent in traditional Chinese medicine for thousands of years. The aim of this study was to explore mechanism of SC curing p-chlorophenylalanine (PCPA) induced insomnia rats by regulating tyrosine metabolism pathway. Metabolomics was used to study the mechanism of insomnia by UPLC/Q-TOF-MS method. Eight potential biomarkers of significant contribution were characterized in positive mode. It was shown that SC could decline the levels of L-tyrosine, L-dopa, tetrahydrobiopterin and dopamine, increase the contents of pyridoxal and pyridoxal 5'-phosphate, which could inhibit the tyrosine metabolism to treat insomnia. This study could provide a laboratory basis for clinical application of SC to treat insomnia and offer better guidance for searching effective and safe herbal medicines, precaution and treatment of the disease.**

RESUMEN. El insomnio es un problema común del sueño, que es difícil de curar, fácil de afectar la salud y la calidad de vida de las personas. Schisandra chinensis (SC) se ha utilizado como agente sedante e hipnótico en la medicina tradicional china durante miles de años. El objetivo de este estudio fue explorar el mecanismo de cura por SC de ratas con insomnio inducido por p-clorofenylalanina (PCPA) mediante la regulación de la vía del metabolismo de la tirosina. La metabolómica se utilizó para estudiar el mecanismo del insomnio mediante el método UPLC/Q-TOF-MS. Ocho biomarcadores potenciales de contribución significativa se caracterizaron en modo positivo. Se demostró que SC podría disminuir los niveles de L-tirosina, L-dopa, tetrahidrobiopterina y dopamina, aumentar el contenido de piridoxal y piridoxal 5'-fosfato, lo que podría inhibir el metabolismo de la tirosina para tratar el insomnio. Este estudio podría proporcionar una base para la aplicación clínica de SC para tratar el insomnio y ofrecer una mejor guía para buscar medicamentos herbales efectivos y seguros para la precaución y tratamiento de la enfermedad.

KEY WORDS: insomnia, metabolomics, Schisandra chinensis, tyrosine metabolism , UPLC/Q-TOF-MS.

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