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Network Pharmacology-Based Investigation of *Smilax china* as a Multi-Target Therapeutic Candidate for Autism Spectrum Disorder

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Autism spectrum disorder (ASD) is a complex neurodevelopmental condition characterised by impairments in social communication, restricted interests, and repetitive behaviours, with varying levels of severity that require tailored support. Both genetic and environmental factors contribute to ASD aetiology, with over a thousand associated genes identified alongside prenatal, perinatal, and postnatal risk factors. Current treatment approaches, including behavioural therapies, pharmacological interventions, and emerging neurointerface technologies, focus on alleviating symptoms but lack universal efficacy. Network pharmacology offers a promising strategy by integrating bioactive compounds, molecular targets, and signalling pathways to explore novel therapeutic options. Previous studies have demonstrated the potential of natural compounds such as Withania somnifera, Albizzia bark, Naringenin, and traditional Chinese herbal formulations in modulating ASD-related mechanisms. Smilax china, a medicinal plant widely used in traditional systems for its diverse pharmacological activities, anti-inflammatory, antioxidant, neuroprotective, and immunomodulatory, remains underexplored in ASD therapy. This study aims to investigate the therapeutic potential of Smilax china in ASD through network pharmacology and molecular docking approaches, providing new insights into multi-target and multi-pathway interventions for the disorder.

Keywords: Autism spectrum disorder, Bioactive compounds, Network pharmacology, Natural compounds, Neurodevelopmental disorder

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