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Editorial

Nature's Psychopharmacology: Unlocking the Flavonoid Diversity of Medicinal Plants for Neurological Health.

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As the global burden of mental disorders is significantly increasing, modern medicine is facing a pivotal shift away from synthetic single-target drugs and toward nature's sophisticated botanical pharmacy. Traditional psychopharmacology often struggles with therapeutic delays and systemic toxicity, making the search for safer, multi-targeted alternatives an urgent scientific frontier. Hidden within centuries-old medicinal flora lies a rich reservoir of bioactive molecules capable of fundamentally altering neurochemistry. By evaluating the structural and mechanistic diversity of these natural compounds, recent research opens an inspiring window into how targeted plant extracts can reshape our approach to neurological health.

Trigonella foenum-graecum is known as one of the traditional and most promising medicinal herbs belongs to the leguminous family. *Trigonella foenum-graecum* (Fenugreek) seeds flavonoids have many biological activities. Flavonoids from *Trigonella foenum-graecum* seeds showed inhibition in the activity of MAO-A and increase in the levels of monoamine neurotransmitters (NE, 5-HT, DA and their metabolites) in the prefrontal cortex, hippocampus and striatum in chronic restraint stress mice [1]. Its major flavonoids are Quercetin 4'-O-β-d-glucopyranoside, Kaempferol 3-glucoside, Apigenin 4',7-O-diglucoside, Isoschaftoside, Schaftoside, and Apigenin 8-C-α-d-glucopyranoside.

Similarly, *Viola odorata* L., also known as English violet, is a small herb and belongs to the family Violaceae. *Viola odorata* has bioactive flavonoid substance; it contains three abundant flavonoids 5,7-Dihydroxy-3,6-dimethoxyflavone, 5,7,4'-trihydroxy-3',5'-dimethoxyflavone and 5,7,4'-trihydroxy-3'-methoxyflavone. Previous study shows that flavonoid extract of this plant can significantly decreased the immobility time in the FST and TST in mice and increase the monoamines level [2]. *Stachys lavandulifolia* Vahl. is one of the largest genera from Lamiaceae family. It has four main bioactive flavonoids including Apigenin, kumatakenin, penduletin and 4,7-dihyroxy- 3, 5, 6-trimethoxy flavon. Previous study shows that its flavonoid extract can reduce the immobility time and increase the GABA activity [3].

Another plant of high interest is *Allium cepa* L., which belongs to family Amaryllidaceae or Alliaceae. It contain highly bioactive flavonoid Kaempferol-3-O-β-D-6-Glucopyranoside and quercetin 4'-O-glucoside. A researcher discovered that its flavonoid extract can increase the monoamines level and can also inhibit the MAO-A. Its flavonoid extract also has potential to reduce the immobility time in mice. MAO-A inhibition is targeted by various antioxidants for antidepressant protentional evaluation [4]. Additionally, *Ormosia henryi* Prain Leaf belongs to Leguminosae family and it contains polyprenylated Iso-flavanone and Iso-flavonoids. Previous study on its antidepressant activity shows that, its flavonoid extract can reduce the immobility time in mice and enhances the BDNF level which show its strong neuroprotective activity.

Ultimately, mapping these botanical profiles highlights a profound truth: the complexity of human neurobiology might find its best match in the complexity of natural compounds. By moving beyond single-compound models. Translating this extensive laboratory data into clinical breakthroughs is the next great milestone for modern medicine. The structural wealth of these plants.

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