

POSTER

NEUROBIOLOGICAL IMPACT OF *CITRUS BERGAMIA* IN THE IDIOPATHIC AUTISM MODEL BTBR

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Autism spectrum disorder (ASD) is a multifactorial neurodevelopmental disorder characterized by deficits in communication skills, social interaction and stereotyped behaviors, along with immune dysregulation, neuroinflammation and oxidative stress¹. Recently, a Citrus bergamia extract (BPE), featured by high concentrations of flavonoids, has been shown to possess antioxidant and neuroprotective properties^{2,3}. On this basis, BPE was used to evaluate its efficacy in some neurobiological activities of a murine model of ASD, the BTBR T+ Itpr3tf/J (BTBR) as compared with the control C57BL6J mice. Both strains were fed a standard chow diet (CD, 2019 Teklad Global Diet, 9% fat, 19% protein, 44.9% carbohydrate; Envigo RMS, Udine, Italy) \pm BPE (100 mg/kg⁴; Quasiora Laboratory, University of Calabria) for four weeks. As expected, BPE significantly improved ASD-related symptoms in BTBR mice by reducing repetitive behavior ($p < 0.001$), as well as increasing memory ($p < 0.001$)

and social interaction ($p < 0.01$). At the metabolic level, BPE induced a reduction in the plasmatic level of total cholesterol ($p < 0.001$). Interestingly, such parameters were linked to a restoration of thickness in the hippocampal subregions (CA1, CA2, CA3, dentate gyrus) and an increase in the cerebral cortical thickness. Overall, these data suggest potential mitigating effects of BPE in ASD. However, further studies are needed to clarify the underlying molecular mechanisms and to establish whether BPE could be useful for reducing drug dosages, thus limiting the onset of side effects, which may represent a major limitation in traditional medicines.

References

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