

On the Promising Effectiveness of Edible Insects as Suggested Novel Nutritional Intervention to Overcome Feeding Challenges in Individual with Autism

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Abstract

Feeding challenge associated with disruptive mealtime behaviour due to ASD symptoms, such as severe food refusal, limited food repertory, and high-frequency single item consumption which are directly related to sensory processing issues (i.e., texture, smell, and taste) is well distinguished. As a result, children with ASD are excessively vulnerable to malnutrition. In general, children with ASD have reduced serum levels of pantothenic acid, biotin, folate, vitamin B12, vitamin D, vitamin E, and glutathione. They also showed lower total omega-3 / omega-6 fatty acid ratio together with altered gut microbiota. There have been few investigations on the impact of complementary and alternative medicine (CAM) and many children with ASD utilized potentially dangerous complementary and alternative medicine, such as chelation, antibiotics, or high vitamin intake. Looking for novel, safe and nutritionally rich product with potent antioxidant, anti-inflammatory should be encouraged. Recently, edible insects are highlighted as novel food ingredient that has the potential to improve global food security and give an attractive culinary alternative food source. Insect utilization in food production is also critical for mitigating the harmful consequences of climate change. Although most people do not consider insects to be edible, the growing debate over the sustainability of conventional protein sources may allow for the introduction of insect-based foods into Western diets. On the basis of the reviewed evidence, dietary supplementation with edible insects was also able to counteract dietary oxidative stress in animal models, restoring the balance of antioxidant enzymes and reducing the formation of oxidation damage markers as etiology of many diseases among which is ASD. Moreover, edible insects interestingly demonstrate anti-inflammatory efficacy through the inhibition of lipoxygenase and cyclooxygenase-2 as two pro-inflammatory enzymes and can correct the microbiome composition differentially and treat symbiosis and gut leakiness as ASD autistic characteristics and thus could be suggested as complementary nutritional intervention to treat autistic patients.