

Abstract Information

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Address :	Oregon Health & Science University, Portland, OR, USA
Participation :	symposium
Title of the Symposium :	Environmental toxins and brain alterations: from mild cognitive effects to severe consequences on neuronal cell death
Category :	Academic/Researcher
Thematic Area :	Pollutants, Neurotoxicity, and Brain Disorders
Title :	Nutritional Neurotoxic Disease (Lathyrism, Cassavism) in Changing Climates.
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Abstract :	<p>Lathyrism and cassavism are self-limiting upper-motor-neuron disorders that impact poor children and adults in Africa and elsewhere who depend for food on seed of grasspea (<i>Lathyrus sativus</i> L.) and the root and leaves of the tuberous cassava plant (<i>Manihot esculenta</i> Crantz), respectively. Both plants grow without chemical inputs and tolerate environmental extremes (notably drought), which make them well suited to future climate change. Cassava is a staple and major caloric source for ~800 million people in tropical areas worldwide, with pockets of cassavism (up to 20% prevalence) in Africa from the DRC to Mozambique. Grasspea is a staple food in parts of northern Ethiopia where lathyrism prevalence is high (circa 5%). Both plant products must be detoxified for use as a staple food because protein-rich grasspea harbors the excitotoxin Beta-N-oxalylamino-L-alanine, while carbohydrate-rich cassava root contains the cyanogenic glucosides linamarin and lotaustralin. Neurological burden of these food-associated insults includes but not limited to distinct motor neuron disease and possibly, cognitive impairments. Food use of low-toxin strains of these valuable plants may reduce the risk of nutritional neurotoxic disease. Recent advances indicate that use of antioxidants and/or probiotics may be explored to unveil novel therapeutics.</p>
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