World Academy of Science, Engineering and Technology
International Journal of Biomedical and Biological Engineering
Vol:10, No:05, 2016

In Vivo Maltase and Sucrase Inhibitory Activities of Five Underutilized Nigerian Edible Fruits

Authors : Mohammed Auwal Ibrahim, Isa Yunusa, Nafisa Kabir, Shazali Ali Baba, Amina Muhammad Yushau, Suraj Suraj Ibrahim, Zaharaddeen Idris Bello, Suleiman Haruna Suleiman, Murtala Bindawa Isah

Abstract : Background: Inhibition of intestinal maltase and sucrase prevents postprandial blood glucose excursions which are beneficial in ameliorating diabetes-associated complications. Objective: In this study, the inhibitory effects of fruit extracts of Parinari macrophylla, Detarium microcarpum, Ziziphus spina-christi, Z. mairei and Parkia biglobosa were investigated against intestinal maltase and sucrase. Methods: Rats were given co-administration of the fruit extracts with maltose or sucrose and blood glucose levels were measured at 0, 30, 90 and 120 min. Results: The glucose-time curves indicated that all the fruits had the most potent inhibitory effects on both maltase and sucrase within the first 30 min. The computed Area Under the Curves (AUC0-120)for all the fruits indicated more potent inhibitory effects against intestinal maltase than sucrase.The ED50 range for the fruits extract against maltase and sucrase were 647.15-1118.35 and 942.44-1851.94 mg/kg bw respectively. Conclusion: The data suggests that the fruits could prevent postprandial hyperglycemia via inhibition of intestinal maltase and sucrase.

Keywords : diabetes mellitus, fruits, α-glucosidases, maltase, sucrase
Conference Title : ICETM 2016 : International Conference on Ethnomedicine and Traditional Medicine
Conference Location : Amsterdam, Netherlands
Conference Dates : May 12-13, 2016