Antioxidant and Free Radical Scavenging Abilities of Some Indigenous Nigerian Drinks

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Abstract

Antioxidant contents of five local Nigerian drinks namely: ‘Kunu’, palmwine, plantain, soyabean and ‘zobo’ drinks were analyzed for flavonoids, phenols and vitamin C. The antioxidant scavenging abilities were evaluated using four invitro methods. ‘Zobo’ drink with sugar (Zs) had the highest phenolic contents (16.00±0.26mg/ml) while ‘zobo’ drink with ginger (ZG) recorded the highest flavonoids and vitamin C (3.91±0.02mg/ml and 2.31±0.01mg/ml) respectively. Local palm wine had the lowest phenols, flavonoids and vitamin C contents. (1.44±0.00mg/ml, 0.10±0.04mg/ml and 0.29±0.02mg/ml respectively. ‘Zobo’ drink without sugar (ZNS) had the highest 2,2-diphenyl-1-picrylhydrazyl (DPPH) and the nitric oxide (NO) scavenging abilities of (70.18±0.65% and 52.63±0.00%) respectively. ZG had the highest ferric reducing antioxidant properly (FRAP), of 32.43±0.19mgGAE/ml. A strong positive correlation exists between the total flavonoid, phenol and vitamin C content with their antioxidant capacities. Soybean was second to ‘Zobo’ drinks in the scavenging of the DPPH radical and ferric reducing ability. ‘Kunu’ drinks had the lowest ability to mop up the DPPH radical (12.85±0.00), but a fair ability in the mopping up of the ABTS (0.32±0.001) and NO (21.05±7.44) radicals. Plantain drink showed significantly (P≤0.05) lower levels of flavonoids and vitamin C in comparison to kunu drink.

Keywords: phenolics, flavonoids, vitamin c, radical scavenging ability.