

Comparative analysis of the antioxidant potential of traditional and contemporary betel quids used in Sri Lanka

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Chewing of betel quid has been practiced in Sri Lanka since ancient times. The traditional betel quid (TBQ) chewed by our ancestors consisted of the leaves of Nagavalli variety of betel, clove, nutmeg, mace of nutmeg, cardamom, arecanut, coriander, and ingurupiyali. Over the years the constituents of betel quid has changed and the contemporary betel quid (CBQ) consists of leaves of the Mahamaneru variety of betel, areca nut, tobacco and slaked lime. Chewing of CBQ has been identified as a major risk factor for development of oral cancer. Even though extensive educational campaigns have been conducted to discourage chewing of CBQ, general public is reluctant to give up this habit due to its stimulatory and addictive effects. One strategy to overcome addiction is substitution of the addictive substance with a better substance by highlighting its beneficial effects. One candidate for substitution of CBQ is TBQ. This study was undertaken to comparatively analyze the antioxidant potential of the TBQ and compare it with that of the CBQ.

TBQ and CBQ prepared by mixing equal weights of air dried ingredients were extracted in ethyl acetate and dried by rotary evaporation followed by freeze drying. Dried extracts were dissolved in DMSO and tested for ferric reducing antioxidant power (FRAP) and DPPH radical scavenging activity. Final antioxidant potentials were calculated per gram of the original dry weight of each quid. Analysis of results revealed that TBQ has 6.8 fold higher FRAP (TBQ= 1292.8±39.7mmol/gram of dry weight; CBQ=189.9±5.8 mmol/gram of dry weight) and 3.3 fold higher DPPH radical scavenging activity (TBQ IC₅₀=83.52±1.04; CBQ IC₅₀=274.16±2.36) when compared to CBQ.

Accordingly, TBQ has a significantly higher antioxidant potential when compared to CBQ *in vitro*. Further studies are in progress to evaluate their antioxidant potentials *in vivo*.

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