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In vitro Antioxidant and DNA Protectant Activity of Different Skin Colored Eggplant (Solanum melongena)

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Abstract : The main objective of our study was to determine the in vitro antioxidant and DNA protectant activity of aqueous extract of S. melongena with different skin colors; dark purple (DP), moderately purple (MP), light purple (LP) and purple and green (PG). The antioxidant activity was evaluated using the DPPH and ABTS free radical scavenging assay, ferric reducing antioxidant power (FRAP), ferric thiocyanate (FTC) and the egg yolk model. The effectiveness of eggplant extracts against radical induced DNA damage was also determined. There was a significant difference ($p < 0.0001$) between the skin color and antioxidant activity. TPC and FRAP values of eggplant extracts ranged from 48.67±0.27-61.11±0.26 (mg GAE/100 g fresh weight) and 4.19±0.11-7.46±0.26 (mmol of FeS04/g of fresh weight) respectively. MP displayed the highest percentage of DPPH radical scavenging activity while, DP demonstrated the strongest total antioxidant capacity. In the FTC and egg yolk model, DP and MP showed better antioxidant activity than PG and LP. All eggplant extracts showed potent antioxidant activity in retaining DNA against AAPH mediated radical damage. DP and MP demonstrated better antioxidant activity which may be attributed to the higher phenolic content since a positive correlation was observed between the TPC and the antioxidant parameters.

Keywords : Solanum melongena, skin color, antioxidant, DNA protection, lipid peroxidation
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