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HPLC-UV analysis of α-tocopherol and β-carotene in amaranth, spider plant, and nightshade accessions grown in New Jersey

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Amaranth (Amaranthus spp.), spider plant (Cleome spp.), and nightshade (Solanum spp.) are popular African indigenous vegetables (AIVs) that are commonly incorporated into many ethnic African and some Asian recipes. These crops are easy to grow, and are rich sources of essential micronutrients. In this study, an HPLV-UV method was used to measure the β-carotene (vitamin A) and α-tocopherol (vitamin E) content of three amaranth, four spider plant, and eight nightshade accessions grown in New Jersey. The results of this study will be used to breed future Zambia, Kenya, and Tanzania varieties that contain high amounts of micronutrients to support efforts to combat malnutrition throughout Africa. The α-tocopherol content of amaranth accessions was found to range from trace levels to 1.13±0.02 mg/100 g while β-carotene ranged from 1.00±0.45 mg/100 g to 4.85±0.56 mg/100 g. Alpha-tocopherol content of spider plant accessions ranged from 3.04±1.77 mg/100 g to 7.32±2.21 mg/100 g and β-carotene ranged from 4.40±1.08 mg/100 g to 17.80±4.80 mg/100 g. The α-tocopherol content of nightshade accessions was determined to range from 6.41±0.28 mg/100 g to 22.97±1.99 mg/100 g while β-carotene ranged from 6.23±0.04 mg/100 g to 13.88±1.09 mg/100 g.

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Bacopa procumbens extract enhance wound healing process regulating molecular effectors in an *in vivo* model

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Skin wound healing progress is directed by complex coordination and interaction of several cell type soluble mediators and extracellular matrix. New alternatives for wound management have been sought. Previous results from our laboratory demonstrated that *Bacopa Procumbens* Green Mill Extract (BPE) enhance the wound healing process. The main objective of this work was to evaluate the molecular effectors and signaling pathway induced by BPE treatment in excisional *in vivo* model skin wound healing. Through immunohistochemistry and qRTPCR we evaluated the expression of molecular effectors and signaling pathways induced by the healing effect of BPE at 3, 5 and 7 days post-injury *in vivo* model. After 3 day BPE stimulates the expression of TGFβ 1 (2.18±0.06), smad 2/3 (1.39±0.085) ERK 1/2 (1.72±0.047) phosphorylated, MMP9 (13.1±1.16) and β-SMA (2. 52±0.104), all of them involved in the healing process. Interestingly since 5 day, BPE improved collagen type I expression restoring the levels founded in normal skin. Our results showed that BPE regulates different wound healing molecular effectors through TGF-β expression that regulates effects on cell growth, differentiation, migration, and extracellular matrix deposition; BPE effects suggests that it can regulates inflammatory phase by MMP9 overexpression, it also improved fibroblast differentiation and interestingly, BPE enhance extracellular matrix deposition.

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