ABSTRACT

The research was carried out for the extraction of bioactive compounds from the various indigenous sources. For instance, the root of *Daucus carota* (black carrot), the peel and bulb of *Raphanus sativus* used for red anthocyanin pigment. Similarly, the petals of *Calendula arvensis*, and *Helianthus annuus*, as well as the peel of *Citrus paradisi* utilized for yellow β-carotene pigment. The flowers of *Tagetes erecta* were used to obtain orange xanthophyll pigment. The fruit of *Lycopersicon esculentum* used to extract red–orange lycopene pigment; the leaves of *Rapahnus sativus* employed for green chlorophyll pigment, and the fruits of *Phyllanthus emblica, Psidium guajava, Citrus sinensis, and Citrus paradisi* were used the extraction of for vitamin C . The root extract of *Daucus carota* showed maximum yield of anthocyanin (28.76%) in comparison to the aqueous extracts of *Raphanus sativus* root and peel which showed 20.67% and 15.89% yields respectively. The peel extract of *Citrus paradisi* gave the maximum yield of carotenoids (35.45%), whereas the aqueous extract of roots of *Beta vulgaris* gave the maximum yield of betalains (37.76 %), and the pulp extract of both *Citrus sinensis* (34.76%) and *Phyllanthus emblica* (33.27%) gave maximum yield of vitamin C, respectively.

All the crude extracts were tested by two safety tests, heavy metal analysis and the microbiological tests. The results of the test indicated absence of heavy metals and as well as microorganism in all the samples. TLC analysis was performed to examine the occurrence and separation of different color pigments. The Rf values of separated colors indicated the presence different bioactive compounds.All the crude extracts were analyzed by spectrophotometric analysis for the concentration of respective bioactive compounds. The root extracts of *Daucus carota* showed the maximum anthocyanih content of 472 mg/100 g while the maximum betalains content found in root extract of *Beta vulgaris* of 500mg/100g. The peel extract of *Citrus paradisi* showed β–carotene content of 665 ug/100 g whereas the freshly prepared fruit extract of *Lycopersicon esculentum* showed 3130ug/100 g content of lycopene. The petal extract of *Tagetes erecta* exhibited maximum xanthophyll content of 519ug/100 g and the leaves extract of *Rapahnus sativus* gave maximum content of 1137 mg /100 g. When the fresh fruit extracts of Phyllanthus *emblica Psidium guajava, Citrus siensis* and *Citrus paradisi* were examined for the presence of vitamin C content they showed vitamin C contents of 600 mg/100 g, 269.1 mg/100 g, 59.25 mg/100 g and 43.13 mg/100 g respectively.

All fresh extracts and extracts kept at three different temperatures i.e. room temperatures, 45°C (incubator), freezing temperature (below zero °C) were used for nutritional analysis. The results depicted contents of the various bio molecules, i.e. protein, fat, carbohydrate, moisture and ash in the all plant extracts. The fruit extract of *Psidium guajava* gave maximum ash content of (53.12%) while the root of *Beta vulgaris* showed maximum total carbohydrate content of (9.56%). The maximum level of found in the fruit extract of *Citrus paradisi* (0.59%) and the fruit extract of *Citrus siensis* showed the maximum protein content of (11.02%).Whereas the leaves extract of *Rapahnus sativus* showed highest moisture content (98.45%).The phytochemical analysis was carried out on all the plant crude extracts which showed the presence of medicinally active constituent's (bioactive compounds) which were present along with natural color pigments. In all crude extracts various important phytochemicals, i.e. alkaloides, saponins, flavonoides, tanins, phenols and terpenoids were qualitatively identified.

Antibacterial activity of aqueous extract, ethanol extract and methanol extract of various plants crude extracts were estimated against four bacterial strains two gram-negative *E. coli* and *P. aeruginosa* and two gram- positive *S. aureus and B.subtilis.* The methanol fruit extract of *Phyllanthus emblica* showed the maximum growth zone of inhibition (44.85±0.66 mm) against *E. coli* while the fruit extracts of *Citrus siensis* showed maximum potential of (25.36±0.31mm) against *Pseudomonas aeruginosa.* The methanolic fruit extracts of *Phyllanthus emblica* exhibited tremendous activity (44.85±0.66 mm) against while the fruit extracts of *Citrus paradise* gave the maximum activity of 27.3±0.36 mm o against *B. subtilis.* The significant IC50 values of all crude extracts was observed the flower extracts of *Tagetes erecta* gave the minimum IC50 value of 8.8 which is less then the BHT standard which indicate that this extract has good ability to scavenge the DPPH radicals . The fruit extract of *Phyllanthus emblica* showed the maximum antioxidant activity of 163.89±0.30 and the total phenolic contents were highest (242.95±0.6 mg/g) in fruit extract of *Citrus siensis.* The root extract of *Daucus carota* gave the maximum % age inhibition of about 58.66±1.1% that was comparable to the antioxidant standard, i.e. BHT. Overall all crude extracts indicated reasonable antioxidant and antimicrobial activity that support their medicinal uses. Some of the bioactive compounds were applied on food products, i.e. ice sherbets, jellies, hard candies, sager syrups, milk & yogurt, ice creams and cakes and their organoleptic evaluation was done which shows the satisfactory results for the application of betalains, anthocyanin and lycopene on food products.