SUMMARY AND CONCLUSION

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The energetic benefit of aerobic metabolism is associated with the generation of reactive oxygen species which are implicated in variety of diseased conditions. Diet contains several substances that are capable of scavenging ROS directly or indirectly by promoting mechanism which enhance detoxification. Strong evidence suggests that consumption of fruits and vegetables results in decreased incidence of all types of cancer. Beetroot is widely included in the diet and is evaluated for its antioxidant property. Beetroot species are grown worldwide as a vegetable. It is an excellent source of natural colour and has vital macro and micro nutrients.

A study was conducted to compare the antioxidant level in two beetroot varieties namely detroit dark red and Ooty variety. The enzymic antioxidants like catalase, superoxide dismutase, peroxidase, glutathione-S-transferase, glutathione peroxidase, glutathione reductase, polyphenol oxidase and non enzymic antioxidants like ascorbic acid, α-tocopherol, glutathione, polyphenol, total carotenoids and lycopene were analysed in the selected beet root varieties.

The results revealed the following conclusions:

- The highest activity of catalase was observed in the detroit dark red variety, which inturn coincides very well with the highest activity of superoxide dismutase in the same species.
- Peroxidase activity was found to be high in the Ooty variety compared to the other variety.
- Detroit dark red variety had registered a very high activity of glutathione-S-transferase and glutathione reductase.
- Glutathione peroxidase activity was found to be significantly ($P<0.005$) higher in the detroit dark red variety when compared to the other variety.
- Polyphenol oxidase activity was high in the Ooty variety.

- Ascorbic acid and Polyphenol contents were found to be high in the detroit dark red variety and low in the Ooty variety.
- In detroit dark red variety, the highest level of carotenoid and lycopene were observed, whereas low in the Ooty variety.
- The highest level of α-tocopherol and glutathione were found in the Ooty variety and were less in the detroit dark red variety.

Among the two beetroot varieties analysed, the detroit dark red beetroot was found to be the best with higher activities of enzymic as well as non enzymic antioxidants. Whereas the Ooty variety had shown the minimal level of antioxidants.

The antioxidants present in beetroot may wipe out the free radical bodies as well as lower the cholesterol level. The colour of the beetroot is an important quality and has a beneficial health effect against tumour cells. It is also considered as a raw material for natural food colourant production. Beetroot can also act as detoxifier as they remove waste products from our body and increases nutrient supply to the tissues. Beetroot helps to combat acidosis and aids the natural process of elimination and detoxification.

Beetroot is a good purifier apart from its ability to remove unwanted impurities accumulated in kidneys and gall-bladder. The iron found in beetroot helps our body to make new blood corpuscles. The beet juice, being an excellent solvent for inorganic calcium deposits, is valuable in the treatment of hypertension, arteriosclerosis, heart trouble and varicose veins.

Beets contain betanin, the same substance that is used in certain treatments of depression. It also contains tryptophan, which relaxes the mind and creates a sense of well-being, similar to chocolate. Beets can also lower blood pressure. Fresh beets can add great colour, flavour,

texture and nutritional quality. Even though beetroots have high sugar content, they are low in calories and supply a variety of nutrients. Hence by regular consumption of beetroot in the diet may increase the blood supply, improve the health conditions and prevent many disorders.

Recommendations

Further study can be undertaken to improve the growth and yield of the beetroot varieties through the application of biofertilizers.