



**Tanta University
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Response of broccoli to some plant extracts

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Abstract

In the present study, different concentrations of aqueous extracts (0%, 10% and 20%) of fresh leaves from the basil (*Ocimum basilicum*) and eucalyptus (*Eucalyptus camaldulensis*) were applied to broccoli (*Brassica oleracea* L. var. Italica cv. Groene) during two winter seasons of 2014-2015 and 2015-2016 in Sakha Horticulture Research Station in Kafr El-Sheikh Governorate. The results of both seedling and field experiments showed that basil or eucalyptus extracts significantly enhanced the growth parameters of seedling and all values of broccoli yield parameters particularly by 20% of basil and 10% of eucalyptus. Also the total chlorophyll, carotenoids, nitrogen, potassium, calcium, soluble protein and the sugars of broccoli seedling significantly increased in response to the used extracts of basil and eucalyptus. On other hand, all the used treatments slightly decreased the total chlorophyll in broccoli head except soaking broccoli seeds in basil extracts slightly increased the total chlorophyll. Also, it was observed that low concentrations of both aqueous extract slightly increased carotenoid. Moreover most treatments by basil or eucalyptus extract decreased the nitrogen and phosphorous contents and increased the potassium and calcium contents in the broccoli head.

All treatments with basil or eucalyptus extract decreased the sugar, protein content and free radical scavenging activity and promoted the total alkaloid and phenolic compounds in broccoli head as compared with control. Also all basil treatments increased ascorbic acid content of broccoli head. While only addition of eucalyptus extract 20% slightly increased ascorbic acid.

Keywords: broccoli, aqueous extract, basil, eucalyptus, pigments, protein, sugars, nitrogen, phosphorous, potassium, calcium, total alkaloid, phenolic, ascorbic acid and free radical scavenging activity.