

Abstract

Effects of ethephon and 6-benzylaminopurine (BAP) treatments on enzyme degrading enzymes and a peroxidase-linked chlorophyll bleaching were investigated in broccoli (*Brassica oleracea* L.) florets. The florets were dipped in solutions containing either BAP or ethephon and then incubated in darkness at 20 °C. The hue angle values and chlorophyll contents of ethephon-treated florets declined the most of the five-day experiment. In contrast, hue angle and chlorophyll content declined the least in BAP-treated florets. Pheophytin levels increased the most in ethephon-treated florets and the least in BAP-treated florets. Chlorophyllase, Mg-dechelataase, and peroxidase-linked chlorophyll bleaching increased over the five days in control (untreated) florets. Ethephon treatment enhanced chlorophyllase, Mg-dechelataase, and peroxidase-linked chlorophyll bleaching levels as compared with control. BAP treatment reduced chlorophyllase, Mg-dechelataase, and peroxidase-linked chlorophyll bleaching levels. It was concluded that the activities of chlorophyllase, Mg-dechelataase, and peroxidase-linked chlorophyll bleaching could be regulated by external application of either ethylene (applied as ethephon) or a cytokinin (applied as BAP). In the case of ethephon treatment, accelerated rates of chlorophyll degradation were found and in the case of BAP-treatment, reduced rates of chlorophyll degradation were found.