

Abstract:

Gas chromatography (GC) showed that cut chrysanthemum produced little ethylene during vase life, but responded to higher concentration of ACC or ethylene induced by ACC, which are reflected in a slightly shorter vase life or hastening of premature leaf wilting or yellowing. Therefore, chrysanthemum flowers belong to non-ethylene-climacteric and low ethylene-sensitive type. Strictly, it should not be considered an ethylene-insensitive type.

Enzyme linked immunosorbent assay (ELISA) showed that ABA and IAA levels increased constantly during vase life. Both ABA and IAA could induce ethylene production, causing premature leaf wilting, yellowing, and shortened vase life. The effects of ABA are stronger than those of IAA. It showed that ABA and IAA regulated senescence cooperatively.

ELISA also showed that iPA concentration decreased gradually, but the decrease was retarded by 6-benzyladenine (6-BA). Moreover, 6-BA promoted GA₁₊₃ concentration, which increased consistently during vase life. 6-BA and GA₃ both prolonged vase life and delayed premature wilting. In addition, 6-BA inhibited (or antagonized) ethylene production (or ethylene induced by ABA), and enhanced the effect of GA₃. So 6-BA is the main factor retarding senescence.

These results indicated that a total of five kinds of phytohormones affected the senescence process of cut chrysanthemum.