

ABSTRACT

Key words : *Agave amaniensis*, callus cultures, calcium ions, magnesium ions, copper ions, cobalt ions, sapogenin steroid

The simultaneous effect of calcium, magnesium, cooper and cobalt ions and their interactions on growth and sapogenin steroids accumulation in callus cultures of *Agave amaniensis* was studied by using central composite second order rotatable design.

The absence of calcium ions in media increased the sapogenin steroids content, whilst by using a relatively high concentration of magnesium, cobalt and copper ions simultaneously inhibited the sapogenin steroids formation, whilst their growth rate were not affected.

From the calculated r and PC' values, we proposed that the biosynthetic pathway of the sapogenin steroids in the callus cultures of *Agave amaniensis* were from kammogenin to manogenin and finally hecogenin.