The study on shoot induction of Asparagus (*Asparagus officinalis* L.) under the influence of the plant growth regulator benzyl adenine (BA) in *in vitro* culture

Vinh Van Nguyen, and Phuong Dong Tran Nguyen*

Faculty of Biotechnology, Ho Chi Minh City Open University, HCMC, Vietnam
*Corresponding author, E-mail: phuong.ntd@ou.edu.vn

Abstract

Asparagus officinalis L. is well-known as one of the 20 most commonly consumed vegetables worldwide. It is valued for its high nutritional content and unique flavor. Typically, young shoots are consumed as food, while the leaves are used for decorative purposes at events. In this study, we investigated the effect of plant growth regulator concentrations on *in vitro* shoot formation from asparagus axillary shoots. Stem segments (1.0–2.0 cm) with axillary shoots from asparagus plants older than two months were used in this study. The results showed that sterilization with 0.1% $HgCl_2$ (mercuric chloride) for 25 minutes resulted in a low contamination rate and reached a survival rate of 92.59%. To determine the optimal concentration for shoot formation, stem segments with axillary shoots were cultured on MS (Murashige and Skoog) medium supplemented with different concentrations of BA (0.5–3.0 mg/L). After more than six weeks of culture, an average of 7.67 shoots per explant, with a shoot height of 8.23 cm and 100% shoot induction were observed from the MS medium supplemented with 3.0 mg/L BA produced. In conclusion, we found that the optimal medium was 0.1% HgCl2 for 25 minutes, and MS supplemented with 3.0 mg/L BA.

Keyword: *Asparagus officinalis L., BA, shoot induction, shoot height*