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# In vitro germination of some walnut (*Juglans regia* L.) cultivars embryos with BAP and IBA plant growth regulators

**Abdollah Ehteshamnia**[1], **Mansour Gholami**[2], **Mahmoud Asna-Ashari**[2]

**1. PhD student of Horticultural sciences, Department of Horticultural Sciences, Bu-Ali Sina University, Hamedan- Iran.**
**2. Department of Horticultural Sciences, Bu-Ali Sina University, Hamedan- Iran.**

*E-mail: ab.ehteshamnia@gmail.com*

Efficient plant regeneration through immature embryos was achieved from immature cotyledons explants of walnut (*Juglans regia* L.). The present studies were conducted to investigate immature cotyledons of open-pollinated fruits from four walnut (*Juglans regia* L.) cultivars (and genotypes). Immature cotyledons were aseptically excised from nine weeks after full pistillate bloom and cultured on Driver and Kuniyuki Walnut (DKW) medium supplemented with different combinations of Indol butyric acid (IBA) and Benzyl amino purine (BAP) hormones. Result indicated that significant differences were among different concentration of plant growth regulators and different cultivars.
Best results were obtained on the medium supplemented with 0.5 and 1 mg L-1 BAP in conjunction with 0.2 mg L-1 IBA, where percentage of germination of excised embryos was varies between 50.73% and 71.27%. B21 Genotype was found to be the best responding cultivar (genotypes), which had a range of 59.1–74.6% embryo germination under various combinations of IBA and BAP were simultaneously applied.

**Keywords:** *Juglans regia* L.; DKW basal medium; Immature embryo;

## INTRODUCTION

The Persian walnut (*Juglans regia* L.) is one of the Monoecious and allogamous plants and belonged to Juglandaceae family that the most important species. Persian walnut (*Juglans regia* L.) is an ancient species (Fjellstrom and Parfitt, 1995). Low percentage of seed germination and long propagation cycle (2–3 months stratification) are the main constraints in the development of high yielding cultivars through hybridization. Application of the methods of plant regeneration from in vitro cultured embryos allows overcoming barriers in hybridization (Hormaza, 1999; Bridgen, 1994), in addition, obtaining higher and faster multiplication rate of plants of an elite genotype. Because of their juvenile nature, embryos have a high potential for regeneration and hence may be used for in vitro propagation (Kaur and et al., 2006). Embryo