

## عنوان مقاله:

Effects of Diode and He-Ne Laser on In Vitro Production of Anthocyanin in Apple Cell Suspension Culture

## محل انتشار:

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## نویسندگان:

Hashem Kazemzadeh-Beneh - *Department of Horticulture Sciences, Faculty of Agriculture, University of Tabriz, Tabriz, Iran*

Nasser Mahna - *Department of Horticulture Sciences, Faculty of Agriculture, University of Tabriz, Tabriz, Iran*

Ebrahim Safari - *Department of Atomic & Molecular Physi, Faculty of Physi, University of Tabriz, Tabriz, Iran*

Fariborz Zaare-Nahandi - *Department of Horticulture Sciences, Faculty of Agriculture, University of Tabriz, Tabriz, Iran*

## خلاصه مقاله:

Plant cell cultures could be used as an important tool for biochemical production, ranging from natural pigments to pharmaceutical products. Anthocyanin is affected by a variety of factors. Light, an important plant environmental factor, influences the anthocyanin production in vegetative plant tissues. Here, we have investigated the influence of the blue laser-diode (BLD) and red laser-He Ne (RLHN) irradiation on the ability of apple cells in producing anthocyanin in suspension culture. Callus was induced from young leaf of apple and cell suspension cultures were subsequently formed from calluses. The normal cell suspension into L-shape tube test exposed to RLHN (6.46, 4.82, 1.54 mWcm<sup>-2</sup> and 666.66 μWcm<sup>-2</sup>) and BLD(67.09, 32.74, 30.4, 13.73 mWcm<sup>-2</sup>) laser radiation for 20 min. Results showed that theanthocyanin production was enhanced significantly by both RLHN and BRD compared withdarkness and fluorescent light cells (P<0.05). The cell cultures exposed to 67.09 BLD and6.46 RLHN indicated highest total anthocyanin (TA) and total monomeric anthocyanin(TMA) contents, while cell cultures exposed to darkness and fluorescent light revealed lowestTA and TAM content, respectively. In addition, we have found that RLHN nearly increasedTA content as well as BLD. However, the BLD laser was more effective on TAM contentthan RLHN laser. At the minimum intensity, the RLHN laser could enhance TA contentwhereas scarcely affecting TMA content. Nevertheless, the BLD laser improved both TA andTMA contents. These results suggest that TAM production is impressed by quantity morethan quality by laser irradiation

## کلمات کلیدی:

blue laser-diode,callus,irradiation,light,redlaser-he

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