

## عنوان مقاله:

Phytoextraction of gold and copper by Composite and Normal plants of *Borago officinalis*

## محل انتشار:

سومین کنگره سراسری در مسیر توسعه علوم کشاورزی و منابع طبیعی (سال: 1395)

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## خلاصه مقاله:

To examine the feasibility of gold phytoextraction, and the corresponding uptake of copper that is induced at the same time, greenhouse and laboratory scale experiments (composite plants) were carried out using mine tailings and soil from the Zarshouran gold mine in Tekab, Iran. The available plant species *B. officinalis* was used in this work, in combination with the chemical amendments: sodium cyanide, ammonium thiocyanate, ammonium thiosulphate, and Potassium cyanide to promote gold uptake. The results show that for *B. officinalis*, average and maximum gold concentrations were 35.02 mg/kg and 81 respectively in the dry matter of aerial tissues with 2mg/kg potassium cyanide. For copper, average and maximum concentrations were 89 mg/kg and 118 mg/kg respectively in the dry matter of I tissues. For gold and copper uptake, Composite plants of *B. officinalis* were very better than Non Composite plants. Translocation factor (TF) of gold and copper were 0.89 and 1.73 respectively and there is not significant difference between Composite and non composite plant of *B. officinalis*. Poor health of plants after treatment with chemicals to induce gold uptake could be a function of toxic concentrations of other trace elements such as copper in the plants. Our results confirmed that phytoextraction technology with *B. officinalis* can be used to recover precious metals, and that at the current market price for gold, this recovery can be economic

## کلمات کلیدی:

Phytomining, Phytoextraction, Phytoremediation, *Borago officinalis*

## لینک ثابت مقاله در پایگاه سیویلیکا:

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