

## عنوان مقاله:

Cloning of three nucleotide-binding site leucine-rich repeat (NBS-LRR) class resistance gene analogs in *Pistacia khinjuk*

## محل انتشار:

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## خلاصه مقاله:

*Pistacia khinjuk* (Stocks) is a native species that, along with *P. atlantica*, is widely distributed from eastern to western Iran through the Makran Zone, Zagros Mountains and the Sanandaj-Sirjan Zone, ranging from 50 to 3300 m above sea level. The identification of resistance gene analogs holds great promise for developing resistant plants. A PCR approach with degenerate primers designed from conserved nucleotide binding site-leucine rich repeat (NBS-LRR) regions of known disease resistance (R) genes was used to amplify and clone homologous sequences from *P. khinjuk*. The primers resulted in amplicons with an expected size of 500 bp. The nucleotide sequence of three amplicons was obtained through sequencing their predicted amino acid sequences compared to each other and to the amino acid sequences of known R-genes revealed significant sequence similarity. Alignment of deduced amino acid sequence of *P. khinjuk* resistance gene analogs (RGAs) showed strong identity (42-60%) to NBS-LRR proteins R-gene subfamily from other plants. A P-loop motif (GMMGGEGKTT), conserved and hydrophobic motif GLPLAL, kinase- $\gamma$ a motif (LLVLDDV), where it was replaced by IAVFDDI and kinase- $\gamma$ a (FGPGSRIII), were present in all RGAs. A phylogenetic tree based on the deduced amino-acid sequences of PKHRGA<sub>1</sub>, PKHRGA<sub>2</sub>, PKHRGA<sub>3</sub>, and RGAs from different species, indicated that they were separated into two clusters. The NBS analogs that we isolated can be used as guidelines to eventually isolate numerous R-genes in pistachio.

## کلمات کلیدی:

(Cloning, *Pistacia khinjuk*, resistance gene analog (RGA)

## لینک ثابت مقاله در پایگاه سیویلیکا:

<https://civilica.com/doc/1839749>

