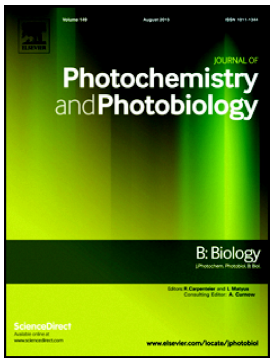
Accepted Manuscript



Muscilage characterization, biochemicals and enzymatic activities of laser irradiated Lagenaria siceraria seedlings

Mazhar Abbas, M. Arshad, Numrah Nisar, Jan Nisar, Abdul Ghaffar, Arif Nazir, M. Asif Tahir, Munawar Iqbal

PII: S1011-1344(17)30562-6
DOI: doi: 10.1016/j.jphotobiol.2017.06.012
Reference: JPB 10873

To appear in: *Journal of Photochemistry & Photobiology, B: Biology*

Received date: 26 April 2017
Revised date: 6 June 2017
Accepted date: 9 June 2017

Please cite this article as: Mazhar Abbas, M. Arshad, Numrah Nisar, Jan Nisar, Abdul Ghaffar, Arif Nazir, M. Asif Tahir, Munawar Iqbal , Muscilage characterization, biochemicals and enzymatic activities of laser irradiated Lagenaria siceraria seedlings, *Journal of Photochemistry & Photobiology, B: Biology* (2017), doi: 10.1016/j.jphotobiol.2017.06.012

This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting proof before it is published in its final form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.

ACCEPTED MANUSCRIPT

Muscilage characterization, biochemicals and enzymatic activities of laser irradiated *Lagenaria siceraria* seedlings

Mazhar Abbas[a], M. Arshad[b], Numrah Nisar[c], Jan Nisar[d], Abdul Ghaffar[e], Arif Nazir[f], M. Asif Tahir[g] and Munawar Iqbal[f,*]

[a]Institute of Molecular Biology and Biotechnology, The University of Lahore, Lahore, Pakistan
[b]Jhang-Campus, University of Veterinary & Animal Sciences Lahore, Pakistan
[c]Department of Environmental Sciences, Lahore College for Women University Lahore, Lahore, Pakistan
[d]National Centre of Excellence in Physical Chemistry, University of Peshawar, Peshawar, Pakistan
[e]Department of Applied Chemistry and Biochemistry, Government College University, Faisalabad, Pakistan
[g]Department of Chemistry, University of Agriculture, Faisalabad, Pakistan
[f]Department of Chemistry, The University of Lahore, Lahore, Pakistan
Corresponding Author E-mail: bosalvee@yahoo.com

Abstract

Laser stimulation effect on *L. siceraria* seed mucilage, biochemicals and enzymatic activities during early growth stages were investigated. The laser density power of 1mW/cm^2 for 3 and 5 minutes (min) treatments were performed and various responses i.e., seed mucilage, biochemical and enzymatic activities were studied. Laser treatment of *L. siceraria* seeds enhanced the biochemical as well as the enzymatic activities. TPC (total phenolic contents),TFC (total flavonoids contents), TSS (total soluble sugar), reducing sugar, proline contents, total soluble protein and nitrogen contents were recorded higher in laser treated groups versus control. Mucilage from *L. siceraria* seed coat was also characterized. The pre-sowing seeds were treated with laser radiation for 3 and 5 min. TPC, TFC, proline contents, total soluble protein and nitrogenous compounds contents, ascorbic acid contents were recorded higher at 3 min. The laser irradiation effect on TSS, hydrogen peroxide (H_2O_2), malondialdehyde (MDA) was insignificant versus control. The SOD (superoxide dismutase) and POD (peroxidase), AMY (amylase), CAT (catalase) activities were recorded higher for 5 min laser treatment. Results revealed that He–Ne continuous wave-laser pre-sowing seed irradiation affected the seed coat mucilage, biochemical

Download English Version:

https://daneshyari.com/en/article/4754395

Download Persian Version:

https://daneshyari.com/article/4754395

Daneshyari.com