

The efficacy of *aloe vera* gel in post-procedural wound care after fractional 1550 nm erbium-doped fiber laser

Montree Udompataikul, Thep Chalermchai and Udomsak Boonnarisarangkoon
Srinakharinwirot University, Thailand

Aim: The aim of this study is to evaluate clinical efficacy and the safety of aloe vera gel in post-procedural wound care after fractional 1550 nm erbium-doped fiber laser treatment.

Material & Method: 30 Thai participants with mild to moderate, photoaging skin, categorized by Glogau's classification were enrolled. All participants were treated with fractional 1550 nm erbium-doped fiber laser. After laser treatment, the participants randomly assigned to apply one side with aloe vera gel and contralateral side with placebo. Clinical erythema score, erythema index, melanin index by Mexameter, transepidermal water loss (TEWL) by Tewameter and skin capacitance by Corneometer were assessed. The daily self-assessment report for wound recovery and global satisfaction score for treatment were assessed by participants. This study was followed for five visits, at the baseline, immediately after laser, at day three, day seven and day 14.

Result: *Aloe vera* group showed significantly better improvement for clinical erythema score than the placebo at day three and day seven after laser (p-value=0.005 and 0.011, respectively). *Aloe vera* group also showed significantly lower transepidermal water loss (TEWL) than the placebo at day seven and day 14 after laser (p-value=0.03 and 0.04, respectively). Therefore, aloe vera group showed significantly better global satisfaction score than the placebo at day seven and day 14 after laser (p-value=0.05 and 0.05, respectively). However, there was no significant difference between two groups for erythema index, melanin index and skin capacitance. Median duration of wound recovery showed no difference between the two groups (six days vs. seven days, p=0.11).

Conclusions: *Aloe vera* gel for post-procedural wound care after fractional 1550 nm erbium-doped fiber laser treatment is highly effective for the reduction of skin redness and the preservation of transepidermal water loss or skin barrier function with better global satisfaction score. *Aloe vera* gel could be considered as an alternative treatment.

umontree@yahoo.com

Elicitation: An effective strategy for the biotechnological production of bioactive compounds

Sedigheh Esmailzadeh Bahabadi
University of Zabol, Iran

Pharmaceutically significant secondary metabolites include alkaloids, lignans, glycosides, flavonoids, volatile oils, etc. Currently, most of these secondary metabolites are isolated from wild or cultivated plants because their chemical synthesis is either extremely difficult or economically infeasible. Plant *in vitro* cultures represent a renewable source of valuable medicinal compounds and cost-effective alternative to classical approaches to plant secondary metabolite production. Numerous strategies have been developed to improve the productivity of plant culture such as medium optimization, precursor addition, elicitation, genetic transformation, metabolic engineering. Elicitation is a good strategy to induce physiological changes and stimulate defense or stress-induced. Traditionally, elicitors have been classified in two types, abiotic or biotic, according to their chemical nature and exogenous or endogenous origin. Here, we summarize the enhancing effects of elicitors on the production of bioactive compounds such as alkaloids, lignans, volatile oils, focusing particularly on the use of biotic elicitors, salicylic acid and nitric oxide. Understanding how plant tissues and their specific secondary metabolic pathways respond to specific treatments with elicitors would be the basis for designing protocols to enhance the production of secondary metabolites, in order to produce healthy fresh foods.

Shirin_esm@yahoo.com