"NOVEL HERBAL STORAGE MEDIA FOR EXARTICULATED TEETH"

By

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ABSTRACT

Background:

Traumatic injuries are common in young children. Exarticulation is one of the most severe forms of dental trauma which is characterized by complete displacement of the tooth from its alveolar socket.

Ideally, the tooth should be replanted immediately after the injury for better prognosis. Unfortunately, immediate repositioning of the tooth is not always possible. In such situations, the management is challenging and the prognosis can become questionable. Tremendous research is done in the field of traumatology to evaluate the potential of various media available in maintaining PDL cell viability.

The quest for a suitable and ideal storage medium still continues. The prognosis of the tooth replantation depends on the existence of feasible cells in the PDL and also depends on those which are able to proliferate on the damaged areas of the root. Recently researchers have proven that polyphenols can help in maintaining PDL cell viability. Such polyphenols are the basic constituents in many herbal products like Cameillia sinensis, Punicia granatum, Vaccinia macrocarpon, Prunus domestica and Psidium guajava leaves which are investigated for Streptococcus mutans in preventing dental caries. Unfortunately, they are not yet explored as storage media for ex-articulated teeth. These herbal products being readily available worldwide might prove as a boon for effective storage capacity and maintenance of cell viability.

This study was aimed to assess the viability of periodontal ligament fibroblasts in different storage media like *Punicia granatum* juice, *Vaccinium macrocarpon* juice,

Prunus domestica juice, *Psidium* guajava leaf extract and *Camellia sinensis* at different time intervals and compare the efficacies of these different storage media for viability of PDL fibroblasts.

MATERIALS AND METHODS

Healthy premolar tooth extracted for orthodontic purpose was taken for creating cell line culture. A strain of periodontal ligament fibroblasts (PDLF) was established from a healthy premolar tooth extracted for orthodontic purpose and cultured in Dulbeco's Modified Eagle's medium. The cultivated cells were exposed to different storage media such as *Punicia granatum* juice, *Vaccinium macrocarpon* juice, *Prunus domestica* juice, *Psidium guajava* leaf extract and *Camellia sinensis* at different time intervals of 15mins, 30 mins,1 hour and 3 hours. Cell viability was assessed with MTT Assay and Neutral red assays. The results obtained were statistically analysed by Kruskal Wallis Anova test, Wilcoxon matched pair test and Mann Whitney U tests.

Results

The obtained data was tabulated and evaluated. Results indicated that Vaccinium macrocarpon and Punicia granatum had greater mean optical density compared to the other study media. The optical density decreased as the time intervals were increased.The viability reduction at 15 mins- 3 hours time intervals was seen least with Vaccinium macrocarpon which was 24.7%. ($p<0.05$).

Conclusion

From the results obtained, it can be concluded that Vaccinium macrocarpon can be used as potential storage media. Puunicia granatum, Prunus domestica, Psidium