CONFERENCE PROCEEDING

Centella asiatica in Wound Healing Activities: Reflection from Hadith Sahih al-Bukhari 5722, Book 76, Hadith 37

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Abstract

The usage of herbal medicinal is well-known among society today in their daily lives. This is mostly due to the tradition of our ancestors who really relied on traditional medicine to cure diseases and improve their health. Herbal plants are said to have more and better nutrients and nourishment than modern medicine. *Centella asiatica*, locally known as *Pegaga* is an herbal plant that is commonly known for its benefits and widely used as traditional medicine and has a variety of benefits for the body. It has been mentioned in Hadith Sahih al-Bukhari 5722, Book 76, Hadith 37. This Hadith states about uses of herbal plant in wound healing activities. Thus, the objective for this study is to determine the scientific value behind prophetic text of traditional treatments in wound healing activities. This study uses the method of qualitative studies in term of content analysis and lab analysis. Based on previous studies, *Centella asiatica* herb can be useful in the treatment of skin diseases, especially in wound healing. The expected results are scientific value of *Centella asiatica* is proven by this Hadith related to traditional treatments in wound healing activities. Overall, it can be concluded that this research is significant and give benefits to all the human being especially in wound healing activities.

Keywords: *Centella asiatica; wound healing activities; Hadith Sahih al-Bukhari 5722; Genius INAQ*

INTRODUCTION

In the blossoming plant family Apiaceae, *Centella asiatica*, ordinarily known as Indian pennywort or Asian pennywort, is a herbaceous perpetual plant. In Asia, it is local to the wetlands. As a culinary vegetable and as a therapeutic plant, it is utilized. *Centella asiatica* is one of the vital spices for the treatment of skin issues, the recuperating of wounds and the rejuvenation of nerves and synapses, principally referred to in India as "Brain food." Over the years, the utilization of *Centella asiatica* in food and beverages has basically expanded because of its medical advantages, for example, cancer prevention agents,, mitigating, wound mending, property improving memory and numerous others.

As we all know, *Centella asiatica* is widely known as a traditional herbal plant. Furthermore, the effectiveness of traditional herbal plant (palm mat) on wounds has been stated in a Hadith which shows that it has a healing effect on wounds.

From Sahih Bukhari, narrated Sahl bin Saud As-Sa`idi:

When the helmet broke on the head of the Prophet (ﷺ) and his face became covered with blood and his incisor tooth broke (i.e. during the battle of Uhud), `Ali used to bring water in his shield while Fatima was washing the blood off his face. When Fatima saw that the bleeding increased because of the water, she took a mat (of palm leaves), burnt it, and stuck it (the burnt ashes) on the wound of Allah's Apostle, whereupon the bleeding stopped.

Therefore, what is the scientific value behind prophetic text of traditional treatment in wound healing activities? Is there any difference between ingredient in palm mat and *Centella asiatica*? Is it true that herbal plants like *Centella asiatica* have anti-inflammatory properties that have an effect on wound healing?

MATERIALS AND METHODS/ METHODOLOGY

Content analysis

Qualitative content analysis is one of the qualitative methods used to analyse textual data. It is a systematic data analysis approach in that it consists of an atheoretical set of techniques that can be used in any qualitative investigation which is relevant to the data quality of the information. Instead of focusing on the information content of the results, qualitative content analysis stands in contrast to approaches that offer empirical insights.

First of all, in terms of data collection, all the data obtained in this study is from previous analysis or studies up to 2014. This is to ensure that all the knowledge collected is up-to-date. After that all the relevant past studies collected are extensively carried out in the characterization process and analysis phase. The data collected will be focusing on three sections i) Scientific value behind prophetic text of traditional treatment in wound healing activities ii) The differences between ingredient in palm mat and *Centella asiatica* iii) The truth of herbal plants like *Centella asiatica* have anti-inflammatory properties that have an effect on wound healing. It was read and compared with this research. The variations between the studies were established in the reporting process. The outcome of the findings obtained will then be discussed in depth in the discussion section.

Materials

Centella asiatica sample of leaf part, ethyl acetate, distilled water, filter paper (Whatman's No 1 Filter Paper)

Extraction

The sample is dried in an oven for 2h at 80ºC. Using a pestle and mortar to grind the sample and place it in a beaker. The 2 g sample is weighed and immersed in a conical flask with 40 ml of ethyl acetate. 2 Samples prepared for the leaf portion of *Centella asiatica*. The conical flask is coated in aluminium foil and kept at room temperature

for 24h. After 24h, the sample will be filtered from Whatman's No.1 filter paper into a conical flask. Ethyl acetate is then added to the filtrate for extraction. The extraction process is carried out using the process of liquid-liquid extraction. Using the rotatory evaporator, the remaining solvent is further extracted and the temperature is set at 76ºC.

Characterization

Samples of *Centella asiatica* were subjected to FTIR processing. The ethyl acetate extract was easily mounted on the large diamond window of ATR-FTIR from the leaf portion of the *Centella asiatica* samples. Attenuated Total Reflection (ATR) is an inspection technique used in conjunction with infrared spectroscopy that allows tests to be legitimately analysed in the solid or liquid state without additional preparation. Four wave frequency spectrum scans ranging from 3800 $\mathbf{cm^{-1}}$ to 800 $\mathbf{cm^{-1}}$ were recorded. The spectral average was used for further analysis. On the spectrum, normalisation and correction of background interference was conducted. In order to facilitate the construction of graphs for further study, transmitted peaks in the 4000 $\mathbf{cm^{-1}}$ to 600 $\mathbf{cm^{-1}}$ range were generated in Microsoft Excel format (.xls).

RESULTS AND DISCUSSION

Scientific value behind prophetic text of traditional treatment in wound healing activities

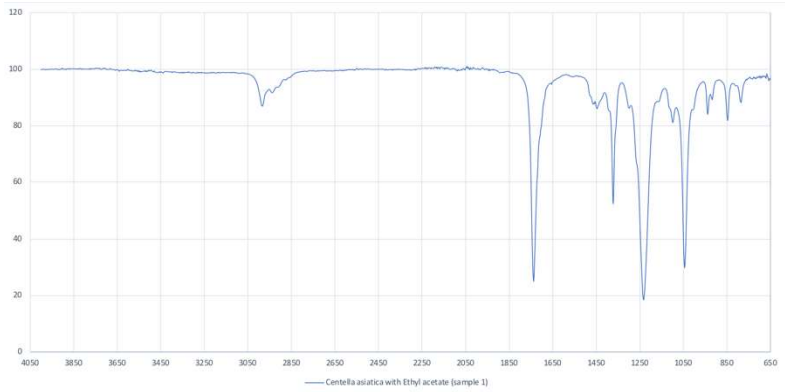

Figure 7. A spectrum graph of *Centella asiatica* extract Sample 1 obtained from ATR-FTIR

Frequency ($\mathbf{cm^{-1}}$)	Transmittance (%)	Functional group
1447.50	85.68	C–C stretch (in–ring) aromatics
1741.05	25.67	C=O stretch carbonyls (general)
2988.09	87.20	C–H stretch alkanes
1233.23	18.28	C–O stretch alcohols, carboxylic acids, esters, ethers
1098.24	80.96	C–N stretch aliphatic amines
2940.95	91.66	O–H stretch carboxylic acids
937.54	84.02	O–H bend carboxylic acids
849.69	82.34	C–Cl stretch alkyl halides

Table 1. The determination of active compounds using the presence of functional group

The functional group of the compound present in the leaves of *Centella asiatica* was calculated using ATR-FTIR. The functional groups are the C-H stretch alkanes, C=O stretch carbonyls, C-C stretch (in-ring) aromatics, C-N stretch carboxylic acids, C-N stretch aliphatic amines, O-H bend carboxylic acids and C-Cl stretch alkyl halides and C-O stretch alcohols, carboxylic acids, esters, ethers from the spectrum graph. It can be shown that these functional classes existed in the leaves of *Centella asiatica*. These functional groups are present in vanillin, cinnamaldehyde, eugenol and safrole, which suggest antimicrobial compounds. Thus, antimicrobial compounds are present in the leaves of *Centella asiatica*, which indicates that *Centella asiatica* leaves have the scientific value of traditional treatment in wound healing activities.

The differences between ingredient in palm mat and *Centella asiatica*

In terms of content analysis, ingredients in *Centella asiatica* and palm mat were analysed using qualitative testing. *Centella asiatica* has been found to be composed of four major active ingredients which is madecassoside, asiaticoside, asiatic acid, and madecassic acid. For its antimicrobial, antioxidant, redness reduction, age and acne combat capabilities, all these active ingredients were examined. Other elements, including flavonoids (quercetin and its glycoside, rutin, kaempferol and its glycoside, catechin, naringenin, apigenin, luteolin, glycoside astragalin and free form), are also found in *Centella asiatica*. Among their numerous glucosides of flavonoids, the palm (*Elaeis guineensis*) leaves contain epigallocatechin, catechin, epicatechin, epigallocatechin gallate, epicatechin gallate. In addition, the leaf of *E. guineensis*, when applied topically to rats, demonstrated substantial pro-healing activity in the infected wound by affecting different stages of the healing process. It can therefore be inferred that this indicates that the material of *Centella asiatica* and palm mat are identical and shows that both have the same characteristic properties as their behaviour in wound healing activities.

The truth of herbal plants like *Centella asiatica* have anti-inflammatory properties that have an effect on wound healing

Numerous studies have found that many of the alleged effects of *Centella asiatica* are due to its capacity for reduce inflammation, improving skin hydration, fostering collagen production and acts as antioxidant. For example researchers found in a study published earlier this year, that when they applied madecassoside to human skin cells that were stimulated by the bacteria often involved in acne, the madecassoside decreased the amount of inflammation associated with that form of acne. And research in rats found that *Centella asiatica* can aid speed the process up of wound healing, especially the stage in which the wound requires collagen to close up. Other than that, a study published in 2017 in the International Journal of Molecular Sciences, researchers found that *Centella asiatica* in a mouse model of eczema (*atopic dermatitis*) was helpful in reducing inflammation.

CONCLUSION

Centella asiatica is believed to have potential in wound healing activities. This is because it do has anti-inflammatory properties that have an effect on wound healing

and the ingredients is similar to the ingredients in palm mat. Thus, it can be reflected that this herbal plant is related to the Hadith mentioning about traditional treatment in wound healing activities.

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REFERENCES

Oliveira, A. I. T. D., Mahmoud, T. S., Nascimento, G. N. L. D., Silva, J. F. M. D., Pimenta, R. S., & Morais, P. B. D. (2016). Chemical composition and antimicrobial potential of palm leaf extracts from Babaçu (Attalea speciosa), Buriti (Mauritia flexuosa), and Macaúba (Acrocomia aculeata). The Scientific World Journal, 2016.

DebMandal, M., & Mandal, S. (2011). Coconut (Cocos nucifera L.: Arecaceae): in health promotion and disease prevention. Asian Pacific journal of tropical medicine, 4(3), 241-247.

Ree, J. F., & Guerra, M. P. (2015). Palm (Arecaceae) somatic embryogenesis. In Vitro Cellular & Developmental Biology-Plant, 51(6), 589-602.

Seevaratnam, V., Banumathi, P., Premalatha, M. R., Sundaram, S. P., & Arumugam, T. (2012). Functional properties of Centella asiatica (L.): a review. Int J Pharm Pharm Sci, 4(5), 8-14.

Sasidharan, S., Logeswaran, S., & Latha, L. Y. (2012). Wound healing activity of Elaeis guineensis leaf extract ointment. International journal of molecular sciences, 13(1), 336-347.

Suhaila, M. (2014). Oil palm leaf: a new functional food ingredient for health and disease prevention. Journal of Food Processing and Technology, 5(2).

Kassim, A. S. M., Aripin, A. M., Ishak, N., Zainulabidin, M. H., & Zaidel, D. N. (2016). Oil palm leaf fibre and its suitability for paper based products. ARPN Journal of Engineering and Applied Sciences, 11(11).

Achuba, F. I. (2018). Powdered Oil Palm (Elaesis guineensis Jacq) leaf as remedy for hydrocarbon induced liver damage in Rats. Nigerian Journal of Pharmaceutical and Applied Science Research, 7(3), 89-95.

Park, J. H., Choi, J. Y., Son, D. J., Park, E. K., Song, M. J., Hellström, M., & Hong, J. T. (2017). Anti-inflammatory effect of titrated extract of Centella asiatica in phthalic anhydride-induced allergic dermatitis animal model. International journal of molecular sciences, 18(4), 738.

Irham, W. H., & Marpaung, L. (2019, September). Bioactive Compounds In Pegagan Leaf (Centella asiatica L. Urban) for Wound Healing. In Journal of Physics: Conference Series (Vol. 1232, No. 1, p. 012019). IOP Publishing.

Ondeko, D. A., Juma, B. F., Baraza, L. D., & Nyongesa, P. K. (2020). LC-ESI/MS and GC-MS Methanol Extract Analysis, Phytochemical and Antimicrobial Activity Studies of Centella asiatica. Asian Journal of Chemical Sciences, 32-51.

Senthilkumar, M. Investigations on quantification of bioactive compounds and in vitro antibacterial property of important medicinal plant of Centella asiatica (L.) urban. system, 12, 13.

Shen, X., Guo, M., Yu, H., Liu, D., Lu, Z., & Lu, Y. (2019). Propionibacterium acnes related anti-inflammation and skin hydration activities of madecassoside, a pentacyclic triterpene saponin from Centella asiatica. Bioscience, biotechnology, and biochemistry, 83(3), 561–568. https://doi.org/10.1080/09168451.2018.1547627

Somboonwong, J., Kankaisre, M., Tantisira, B., & Tantisira, M. H. (2012). Wound healing activities of different extracts of Centella asiatica in incision and burn wound models: an experimental animal study. BMC complementary and alternative medicine, 12, 103. https://doi.org/10.1186/1472-6882-12-103

Park, J. H., Choi, J. Y., Son, D. J., Park, E. K., Song, M. J., Hellström, M., & Hong, J. T. (2017). Anti-inflammatory effect of titrated extract of Centella asiatica in phthalic anhydride-induced allergic dermatitis animal model. International journal of molecular sciences, 18(4), 738.