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## Investigation of *Artemisia annua* and *Artemisia sieberi* water extracts inhibitory effects on $\beta$ -hematin formation

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Malaria is the most prevalent infectious disease in the world, killing 1-2 million people each year. New drugs are urgently needed to treat drug-resistant strains of malaria. In a previous study, we found that extracts from *Salvia palestina* leaves inhibited the formation of  $\beta$ -hematin with efficiency similar to that of chloroquine. The objective of this study was to investigate the effect of other plant extracts on hemozoin formation. A comparison between the efficiency of aqueous extracts/infusions of *Artemisia annua* from Luxembourg and *Artemisia sieberi* from Palestine in inhibiting  $\beta$ -hematin formation was done. Although it was found that the *Artemisia sieberi* leaf tea infusion was less effective than that of the *Artemisia annua*, the stem infusion of *Artemisia sieberi* was found to be better than that of *Artemisia annua* stems. Results obtained with infusions prepared with tap or well water may be different from results obtained in the laboratory with distilled water. *Artemisia annua* leaf infusions prepared using salt water (0.5 g salt/150 ml water) had higher efficiency in inhibiting  $\beta$ -hematin formation than those infusions done with distilled water. Mixing equal amounts of *Artemisia annua* leaf and *Artemisia sieberi* stem water extract showed an increase in their inhibitory effect on  $\beta$ -hematin formation. An important finding in this investigation was that the *Artemisia annua* lyophilized extracts lost activity with time, which may have an impact not only on in vitro laboratory results but also on in vivo treatment efficiency obtained with old extracts. In light of this finding it might be advisable to use *Artemisia annua* in the form of dried leaf powder and not in the form of extracts or infusion. Stored in dry, ventilated conditions the plant keeps its properties for many years.

### Biography

Mutaz Akkawi currently is an Associate Professor of Biochemistry at the Department of Life Sciences of Al-Quds University. He is the Director of the Biochemical laboratory and completed his education at Birzeit University, West Bank and at The Hebrew University of Jerusalem, Jerusalem. He is a member of the Medical Screening Society, London, UK. His research interests include: Screening for a new potential antimalarial drugs using newly developed in vitro methods; building synthetic models for the formation of malarial pigment and; developing biophysical methods for the study of membrane proteins. He is interested in using the FTIR techniques in probing membrane protein secondary structure.

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