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Heme polymerization inhibition of some plants from *Lamiaceae* family

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Statement of the Problem: Malaria is one of the most important parasitic diseases in the world caused by *Plasmodium* species. According to the latest reports, there were 212 million new cases of malaria and an estimated 429 000 malaria deaths worldwide in 2015. *Plasmodium* has got several detoxification mechanisms to protect itself from toxic heme. The most important mechanism is hemozoin formation. Identifying compounds that inhibit heme detoxification is an approach for detecting antimalarial drugs. The present work intended to screen selected plants from *Lamiaceae* family for evaluation of their antimalarial mechanism.

Methodology & Theoretical Orientation: Methanol extracts of *Marrubium astracanicum* Jacq., *Lamium album* L., *Phlomis caucasica* Rech.f., *Nepeta transcaucasica* Grossh., *Salvia sahendica* Boiss. & Buhse, *Salvia grossheimi* Sosn. and *Scutellaria virens* Boiss. & Kotschy were prepared by maceration method. Heme detoxification (ITHD) assessment was done by spectrophotometric analysis of β -hematin formation. Hemin chloride, Tween 20 and samples were added in each well of a 96-wells plate and incubated at 60°C. The absorbance was recorded with a micro-ELISA reader at 405 nm and percentage of heme polymerization inhibition was calculated.

Findings: Methanol extracts of *M. astracanicum* and *P. caucasica* demonstrated inhibition of β -hematin formation at concentration of 200 $\mu\text{g}\cdot\text{ml}^{-1}$. Other plants did not show any remarkable inhibition.

Conclusion & Significance: This is the first report that mentioned mode of antimalarial action of *M. astracanicum* and *P. caucasica*. Since, antiprotozoal activity of these plants has been reported; they could be proper candidates for drug discovery programs in malaria studies.

References

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Biography

Somayeh Esmaeili has her research interests which includes antimalarial and cytotoxic evaluation of medicinal herbs and natural products along with exploring the traditional manuscripts for biological evaluation or preparation of modern dosage forms.

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