

A search for mosquito larvicidal compounds by blocking the sterol carrying protein, AeSCP-2, through computational screening and docking strategies

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ABSTRACT

Background Sterol is a very vital compound for most of the insects and mosquitoes to complete their life cycle. Unfortunately mosquitoes cannot synthesize the sterol, it depends on mammals for the same. Mosquitoes take the sterol from the plant decays during their larval stage in the form of phytosterol, which is then converted to cholesterol for further growth and reproduction. This conversion occurs with the help of the sterol carrier protein 2(SCP2). **Methods** Mosquito populations are controlled by plant-based inhibitors, which inhibit sterol carrier protein (SCPI-Sterol carrier protein inhibitor) activity. In this article, we explain the methods of inhibiting *Aedes aegypti* SCP2 by insilico methods including natural inhibitor selection and filtrations by virtual screening and interaction studies. **Results** In this study protein-ligand interactions were carried out with various phytochemicals, as a result of virtual screening Alpha-mangostin and Panthenol were found to be good analogs, and were allowed to dock with the mosquito cholesterol carrier protein AeSCP-2. **Conclusion** Computational selections of SCPIs are highly reliable and novel methods for discovering new and more effective compounds to control mosquitoes.

KEYWORDS

Mosquito sterol carrier protein . phytochemicals . computational screening . docking . SCPI

REFERENCES

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