



## LIFE + Environment Policy & Governance

### ANNEX B.3.3

**Deliverable B.3: Technical report for the selection of the most suitable (yield-bioactivity-price) EOs for use in pilot experiments**

December 2014

Deadline of deliverable: 31/12/2014

**LIFE CONOPS (LIFE12 ENV / GR / 000466)**

Development & demonstration of management plans against  
- the climate change enhanced - Invasive Mosquitoes in S. Europe



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This deliverable was implemented in terms Action B.3 and concerns the: Technical report for the selection of the most suitable (yield-bioactivity-availability-price) EOs for use in pilot experiments that will be implemented in the framework of LIFE CONOPS PROJECT.

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## **SUMMARY**

**BACKGROUND:** Voluminous results in the agrochemical research discipline promote the utilization of natural products as sustainable alternatives of synthetically produced chemicals. Although this claim is self-proved in respect the nature of the active compounds, is certainly equivocal when their production details, sustainability and economic viability are included in this equation. Aim of this study was to delineate these controversies with the introduction of a calculation methodology, which is capable to enumerate the sustainability of natural compounds production in conjunction with their respective bioactivity performance.

**RESULTS:** The developed methodology successfully assessed all the natural products investigated in the terms of action B.3 implementation scheme, concluding to a numerical value for each EO, which represents the area covered (in m<sup>2</sup>) by the net annual production from a hectare of land. This indicator varied from 0.00 to 2,205.47 (m<sup>2</sup>/hectare-year) for the repellents and from 0.00 to 1,604.73 (m<sup>2</sup>/hectare-year) for the larvicidals.

**CONCLUSION:** Application of the proposed methodology offered for first time solid and documented arguments in relation with the sustainability claims of natural products exploitation as substitutes of synthetic chemical compounds. Results herein identified the following three EOs as most suitable for further evaluation in the terms of the forthcoming pilot field tests: I) the EO of *Origanum onites* (**V 12**), which displayed the best simultaneous repellent and larvicidal properties, II) the EO obtained from the summer collection of unripe *J. phoenicea* berries (**J 17**) selected for the implementation of pilot scale repellency tests, and III) the EO **C 15** originated