

## Natural products as stimulants and inhibitors of parasitic seed germination and radical growth

R. Zatout,<sup>a</sup> M. Masi,<sup>a</sup> A. Evidente,<sup>a</sup> M. Fernandez-Aparicio,<sup>b</sup> A. Cimmino<sup>a</sup>

<sup>a</sup>Dipartimento di Scienze Chimiche, Complesso Univ. Monte Sant'Angelo, Via Cintia, Napoli, Italia

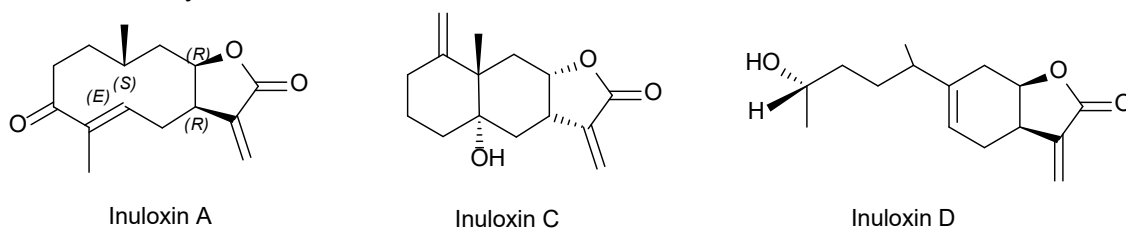
<sup>b</sup>Institute for Sustainable Agriculture, Spanish National Research Center, Cordoba, Spain 2.  
 marco.masi@unina.it

A number of parasitic plants have adapted to agricultural environments becoming weedy and posing a serious threat to important crops. Available control measures rely heavily on use of synthetic herbicides. The side effects on environmental pollution and food health of chemical control prompted studies to find alternative strategies based on the use of natural products.

Some sesquiterpene lactones named inuloxins A-D, belonging to different subgroup as germacrane, eudesmane and seco-eudesmane, were isolated from the aerial parts of *Dittrichia viscosa* (family Asteraceae) and showed to stimulate seed germination leading to suicidal germination, or inhibit germination or disrupting germling growth and haustorium development.<sup>1,2</sup>

The absolute configuration (AC) of inuloxin A was determined by chiroptical and computational methods.<sup>3</sup> The same methods were successively used to assign the AC to inuloxin C,<sup>4</sup> while studies are in progress to assign that of inuloxin D. Recently, considering the potential herbicidal activity of inuloxin A, it was formulated in  $\beta$ -cyclodextrins to overcome its low water solubility and preserving its ability to inhibit *Phelipanche ramosa* seed germination.<sup>5</sup>

In this communication, the purification of other germination stimulants and/or inhibitors of parasitic seed germination, isolated from the same plant, will be illustrated as well as the results of structure-activity relationship studies comparing the biological activity of the natural sesquiterpenoids to that of some their hemisynthetic derivatives.



**Figure 1:** Structures of inuloxins A, C and D.

### References:

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