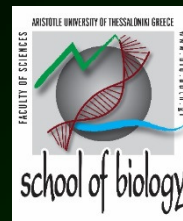


Applications of aromatic plants in Agriculture

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Effects of essential oils

mainly

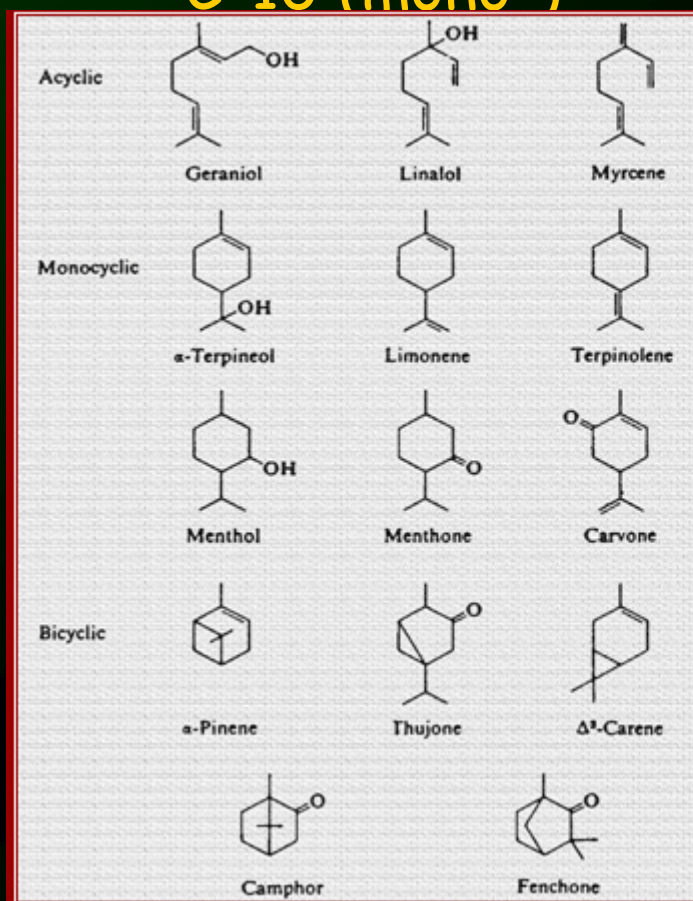
- soil organisms and processes
- plant species (crops and weeds)
- pathogens

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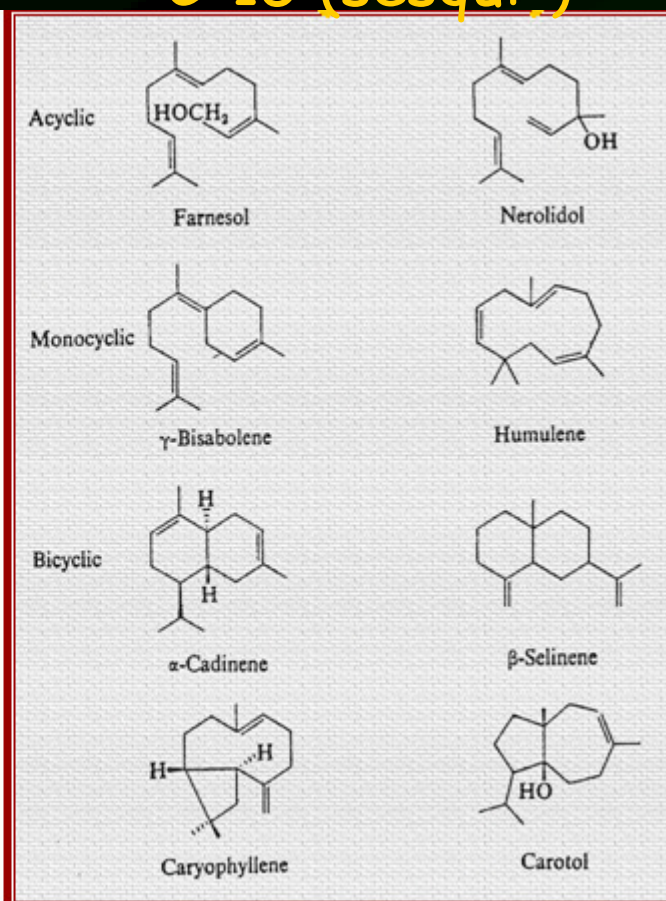
Aromatic plants – Essential Oils

Mixtures of isoprenoid compounds of low molecular weight
(= volatile)

C-10 (mono-)



C-15 (sesqui-)





Essential oils are biologically active

Multifaceted activity

Search for publications on the
biological activity of essential oils

Dominant: *Antimicrobial activity*

primarily against pathogens - human, animal, plant
mainly under laboratory conditions

How much is this expressed in nature?

Mediterranean environment

fragrant

Highest participation of aromatic plants
in vegetation/flora in regions with
mediterranean-type climate

*Mainly representatives of
Lamiaceae, Asteraceae*

Conclusions-I

Essential oils (and individual constituents)

- positive effects on soil metabolism
- changes in size and structure of the microbial community

Conclusions-II

Essential oils (and individual constituents)

Selectivity of action

(for both bacteria and fungi)

- Promoting
- Inhibiting
- Neutral

Depending on the essential oil /
constituent and the organism-target

CONCLUSIONS-III

Aromatic plants

- Selectivity of action of essential oils also expressed towards plants (as target organisms)

In agriculture, they can find novel applications

- *as soil amendments*
- *as plant growth promoters (selectively)*
- *as pesticides (selectively)*

Final conclusions

Great potential for applications in Agriculture

Negative relationships are not the dominant ones among aromatic plants/essential oils and microbes in nature