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THE MICROBIAL EVALUATION OF SOIL FROM IALOMIȚA COUNTY, ROMANIA

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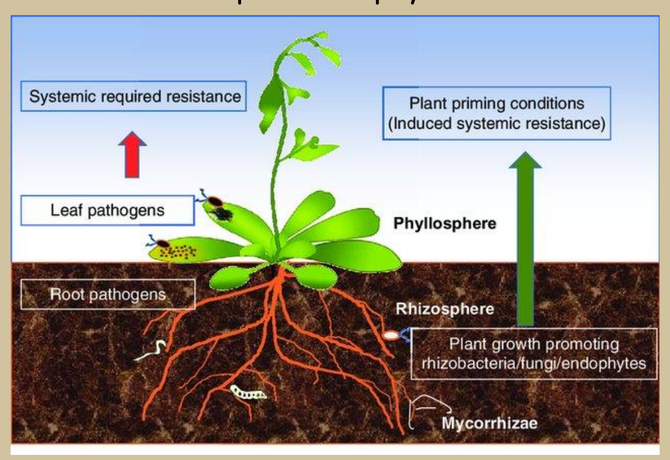
INTRODUCTION

The living soil ecosystem is the main factor in agricultural production. Soil quality is an indicator of environmental and food quality (Sharma et al. 2010). Since the demand for agricultural products is expected to increase by at least 70%, the exploitation of soil microbial communities for preserving the biosphere must be done (Barea, 2015). Thus, the aim of this study was to evaluate the microbial population of soils from Balaciu, Ialomița county in order to know its status and to see if it is suitable for plant halophytes cultivation.



Plant-microbe interactions (Liu et al. 2017)

MATERIALS AND METHODS

The soil samples that were the basis of the experiments were collected from 6 sampling points at a depth of 0-20cm. from which the average soil samples resulted.

After incubation, the samples of the soil were inoculated on culture media (nutrient agar - NA and YPG agar). Sowed Petri dishes were incubated for 7 days at 35 °C for bacteria and 28 °C for fungi.

After incubation, the number of bacteria and fungi in each soil sample was calculated by the CFU determination technique (colony forming units).

CFU = N x c x 10, where,

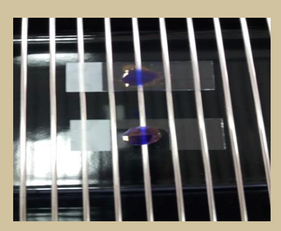
CFU = number of viable cells/1ml sample

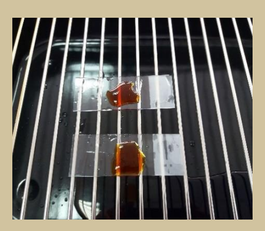
N = average of the colonies counted from the same dilution

c = dilution reverse

10 = coefficient reference to 1ml.

The microscopic examination consisted in making smears using the Gram staining technique





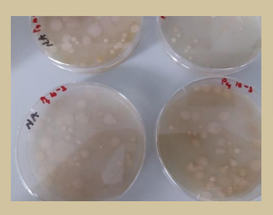
RESULTS AND DISCUSSIONS

At this stage, the following genres have been identified: Ascomycetes, Deuteromycetes (Candida mycoderma spp.), and the following pathogens: Botryotinia fuckeliana (gray rot), Penicillium sp., Rhizopus sp., Aspergillus sp., Mucor sp., species of the genus Agrobacterium, Bacillus, Clostridium, Pseudomonas, Sarcina, Staphylococcus.

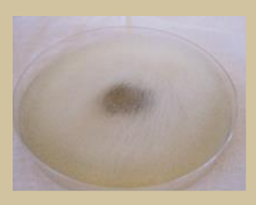
The identified forming units colony are shown in Table 1

Table 1. Results of growth in NA and YPG media

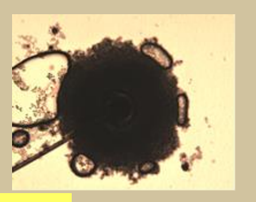
Sample	CFU/10g soil
P_1	287
P_2	269
P_3	253
P_4	274
P_5	284
P_6	267



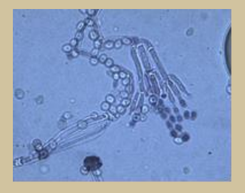
***Bacillus* sp.**



***Mucor* sp.**

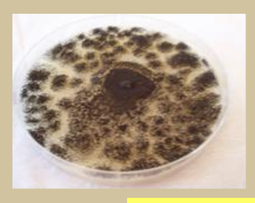


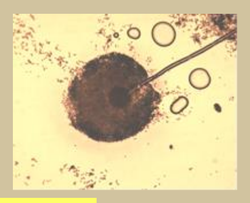
***Rhizopus* sp.**



Penicillium chrysogenum

Aspergillus ochraceus





Aspergillus niger

CONCLUSIONS

- With regard to microbiological soil evaluation the main classes of microorganisms were: actinomycetes, bacteria, and molds.
- The assessment of soil microbiology highlighted: *Bacillus* sp., *Rhizopus* sp., *Aspergillus sp., Penicillium sp.*
- Nonsporogenic bacteria are represented by a series of gram negative species, mainly belonging to the genus *Pseudomonas.*

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