The Importance of Soil Quality Indices for Fighting against *Microsphaera Abbreviata* in Durmast Seedlings

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**Abstract.** Satisfactory soil fertility is a suitable premise for supplying plants satisfactory development. The aim of this paper was the identification of the role of the most important soil indicators involved in durmast seedlings resistance against powdery mildew attack. A durmast nursery located in Transylvanian Plain was monitored in 2008. Basic statistic and correlations were calculated using STATISTICA v. 7.0. In 2008, a non linear dependence between analyzed parameters was reported. Weak negative correlations between the powdery mildew attack degree and humus (- 0.339), nitrogen (0.346) and phosphorus (- 0.313) were reported. They are representative only in a reduced sample share (11.40%, 11.0% and 9.70%, respectively) and not significant, all characterized by non linearity. By entire experimental period, the correlation between the powdery mildew attack degree and potassium content of soil, apart the other studied correlations, is linear, negative, and very weak, not representative (R² = 0.004).

**Keywords:** humus, nitrogen, phosphorus, potassium

**Introduction.** The soil fertility is that property, which consist of its capacity for water and nutritional elements deliverance to plants, in order to facilitate their development (Jacobs *et al*., 2005; Mälkönen *et al*., 2000). In this respect, a series of soil indicators characterize its fertility degree (Hajji *et al*., 2009).

**Aims.** The aim of this paper was the identification of the role of the most important soil indicators involved in durmast seedlings resistance against powdery mildew attack.

**Material and Method.** A durmast nursery located in Transylvanian Plain was monitored in 2008. During vegetation period, there were performed observations concerning the *Microsphaera abbreviata* mushroom attach, in the same time with determination of the attack degree (intensity and frequency of the attack). Basic statistic and correlations were calculated using STATISTICA v. 7.0. Spearman test, for non linear interactions and Pearson test for linear interaction were used.

**Results and Discussions.** In 2008, a non linear dependence between analyzed parameters (except the interrelationship powdery mildew attack degree - potassium soil content) was reported (Tab. 1).

<table>
<thead>
<tr>
<th>Correlated indices</th>
<th>The correlation coefficient</th>
<th>R²</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>GA/AD - pH</td>
<td>( R_S = + 0.526 )</td>
<td>0.276</td>
<td>0.907</td>
</tr>
<tr>
<td>GA/AD - Humus</td>
<td>( R_S = - 0.339 )</td>
<td>0.114</td>
<td>0.183</td>
</tr>
<tr>
<td>GA/AD - N</td>
<td>( R_S = - 0.346 )</td>
<td>0.119</td>
<td>0.318</td>
</tr>
<tr>
<td>GA/AD - P</td>
<td>( R_S = - 0.313 )</td>
<td>0.097</td>
<td>0.221</td>
</tr>
</tbody>
</table>

The correlation between the attack degree of and main indices of soil quality (pH, humus, nitrogen, phosphorus, and potassium – N, P, K), 2008

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Weak negative correlations between the powdery mildew attack degree and humus (-0.339), nitrogen (-0.346) and phosphorus (-0.313) were reported. They are representative only in a reduced sample share (11.40%, 11.0% and 9.70%, respectively) and not significant, all characterized by non linearity. The correlation between the powdery mildew attack degree and potassium content of soil, apart of other studied correlations, is linear, is negative and very weak (-0.086) not representative (R² = 0.007), practically.

![Graphs showing correlations between soil quality indices (pH, Humus, nitrogen, phosphorus) and powdery mildew attack degree (AD)]

**Fig. 1.** The influence of the soil quality indices (pH, Humus, nitrogen, phosphorus) upon the attack degree (AD) of powdery mildew (*Microsphaera abreviata*) in durmast seedlings, 2008

**Conclusion.** During experimental period we notice the positive influence of the mineral fertilization associated to organic fertilization on the resistance of the durmast seedlings against powdery mildew attack degree. N₈₀P₈₀K₈₀ with poultry manure is the fertilization solution, which confer to durmast seedlings the biggest resistance against the attack degree of *Microsphaera abreviata* mushroom.

**REFERENCES**