



Bacteriostatics of volatile organic compounds of Crimean pine and environmental meteorological conditions

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Sanitary and hygienic properties of air saturated with volatile organic compounds of plants (VOC) have a fundamental importance for the biosphere. In particular, they make such a feature as the freshness of the air. The energy contained in VOC and made by Earth vegetation can be compared with the energy of lightning discharges in the atmosphere during the year [1]. The influence of natural environment on the dynamics of VOC developed by plants is also of current interest and is, in particular, important for resort study because VOC produced by the vegetation of the resort regions can be seen as a self-contained resort resource [2]. Dynamics of VOC evolution by Crimean pine (*Pinus Pallasiana* D.Don.) that is the forest forming breed of the resort region Caucasus Mineral Waters (Russia) has been studied by a microbiological method [1]. Dynamics of bacteriostatics was qualified by the extent of oppression of the VOC test- culture (*Staphylococcus aureus* 209p) of the pine in % in comparison with control. The needles for the experience were selected at noon in the middle of the summer. At the time of the needle selection meteorological indicators were fixed. As the result of the researches we got an empirical equation of dynamics of VOC bacteriostatics of the Crimean pine under the influence of total solar radiation (kW/m²) and relative air humidity (%). The coefficient of the multiple correlation of the VOC bacteriostatics of the Crimean pine, total solar radiation and relative air humidity makes: $R=0,83$ at the importance of $F=7,53 > F_{05}=3,49$. The coefficient of the multiple determination is $R^2=0,69$. The equation is:

$y = - 35,1020 + 1,7193x + 175,6638p - 0,0181x^2 + 0,6054(xp) - 191,1319p^2$,

where Y - is bacteriostatics (%); x - is relative humidity (%); p - is total solar radiation (kW/m²). The fixed parameters of the equation are: air humidity - 90-30%; total solar radiation - 0.20-1.0 kW/m²; bacteriostatics - 0-61%.

The obtained results can be used in the resort study while solving the questions of recreational landscape gardening and the organization of natural aerophytotherapy sessions.

Reference:

1. Slepykh V.V. Phytoncide and ionizing properties of woody vegetation. Kislovodsk, 2009. 180 p. - ISBN 5-89421-005-4.
2. Bioclimatic characteristics and phytoncide properties of plant associations of Kislovodsk Resort Park: a manual for physicians. - Pyatigorsk: Ministry of Health of the Russian Federation, 2002. - 31 p.