RELATIONSHIP BETWEEN STOMATAL CONDUCTANCE AND DROUGHT SUSCEPTIBILITY INDEX IN ALFALFA (*Medicago sativa* L.)

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Abstract

Global climate change evidentiate an increase in drought frequencies. In this context the strategies for sustainable use of water and drought resistance improvement based on the physiological traits are important and physiological approaches should be integrated in conventional breeding. Research was performed on 16 alfalfa genotypes under vegetation house conditions at two watering levels and field analyses. The objective was to identify the available genetic variation and to establish efficient physiologycall traits for testing which might positively influence alfalfa performance under drought conditions. Our research were focused on stomatal conductance and chlorophyll content. There is a very significant negative correlation between the drought sensitivity index and the stomatal conductance of alfalfa genotypes sown for fodder (r = - 0.70***). This means that genotypes with a higher stomatal conductance were more productive (low drought sensitivity index means better drought adaptability, so higher production) indicating that stomatal resistance has a very significant impact on production under stress conditions. There is a very significant positive correlation between the chlorophyll content and the stomatal conductance of alfalfa genotypes from the comparative culture sown for fodder (r = 0.79***), which shows that stomatal closure is the main factor limiting photosynthetic activity under water limiting conditions.

Key words: alfalfa, stomatal conductance, chlorophyll content, drought susceptibility index