POLYAMINES AND THEIR INVOLVEMENT IN PLANTS REACTION TO ENVIRONMENTAL STRESS CONDITIONS

Summary

Polyamines: spermidine, spermine as well as their diamine precursor putrescine, are small aliphatic amines ubiquitous in all plant cells. These compounds are regarded as a new class of growth substances. Biological functions of polyamines are attributed to their polycationic character at a physiological pH. Due to the presence of positively charged groups, they are able to bind strongly negatively charged cellular components such as nucleic acids, proteins and phospholipids. Interaction with membrane phospholipids can stabilize membranes under conditions of stress. These compounds can directly or indirectly act as free radical scavengers (ROS). Spermine, which has four amino groups, is a more effective scavenger than triamine spermidine and diamine putrescine, suggesting the involvement of amino groups in ROS scavenging.