



The biostimulator effect of lignin and ammonium lignosulfonate on the growing and development of plants

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The present work has the purpose to point out the biostimulator effect of lignin and ammonium lignosulfonate through their products of biological transformation on the growing and development of the bean plants (the Magna breed). Effect which manifests an intensity which depends on the concentration. But when going beyond a certain level of concentration, both compounds cause an inhibition of the mitotic division which is reflected in the more reduced rhythm of growing. The fact that the lignin products can suffer modifications on the cultivated soil can be emphasised through the plants analyses obtained on this kind of soil. The nitrogen is one of the chemical elements with the most complex and important role in the existence of the living organisms and it cannot be replaced by another nutritive element. It is, generally, the fourth in plants after carbon, oxygen and hydrogen. Usually, only 10-20% from nitrogen in the plant can be found as free ions of NO_3^- or NH_4^+ .

The nitrogen is considered through excellence an element of growth. The growth in dimension or weight of cells and plant generally cannot be conceived without the biosynthesis of the proteic substances that cannot take place without the nitrogen.

Through the chlorophyll one of the nitrogen's component contributes at the photosynthetic activity, the base of all the processes in a plant, including the one of the growth and development. Some of the compounds, because of their specific role, stimulate the growth of the plants. This way, from the phytohormones, the auxins intensify the meristematic cellular division, stimulate the absorption of the water and the mineral substances; the cytokinins amplify the multiplication by the division of the mature nonmeristematic cells. The nucleoproteins, which can be found in the nucleus but also in the cytoplasm and ribosomes have an important role in the cellular division and in the synthesis of the proteins needed both in the growth processes, and the differentiating processes from new tissues and organs. The depletion of the nitrogen leads to the inhibition of the chlorophyll synthesis, growth hormones, nucleoproteins, proteins and, eventually, the plant's growth.