A COMPARATIVE STUDY OF THE EFFECT OF CUMARIN AND VANILLIN ON WHEAT GROWN IN SOIL, SAND, AND WATER CULTURES.1

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THE PRESENT STATUS OF THE THEORY OF SOIL TOXICITY.

INTRODUCTION.

The theory of soil toxicity dates from the time of De Candolle. Believing that the experiments of Macaire,2 which were carried out at his suggestion, proved that plant roots secrete under normal conditions certain organic substances, which in the case of the bean were found to be harmful to the plant that produced them but beneficial to other plants, De Candolle came to consider these root secretions of universal significance in practical agriculture. He proposed to explain the necessity for crop rotation as based on the fact that plants excrete through their roots certain substances that are deleterious to

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