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Quantitative Analysis of Absorption of APAP and ASA by *Oryza sativa* L. Plants under Variable pH Conditions

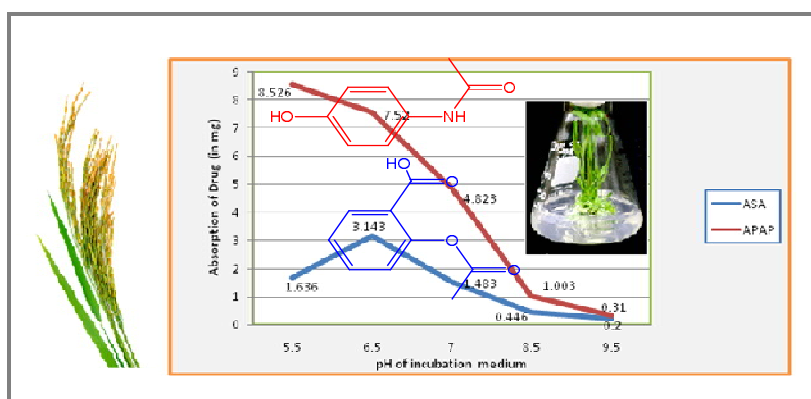
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ABSTRACT

Plants do absorb organic compounds efficiently compared to metal ions or other ionic compounds but if the organic compounds quite soluble in water and having active polar functional groups plants can absorb organic molecules for some extent. Usually amino acids and sugars are absorbed by root cells of plants by co transport with H^+ . But the exact mechanism was still not revealed. PAOMs like drugs having reactive polar functional groups like $-OH$, $-COOH$, $-NH_2$ etc. are considerably absorbed by plant's root system. The functional groups of drugs bind with proteins of plasma membranes of root cells and initially get accumulated in roots, from there the accumulated drugs distributed to different parts of plants through phloem due to Osmotic and Pressure gradients. Absorption of APAP and ASA by *Oryza sativa* L. plants were greatly affected by pH conditions. The optimal pH for maximum absorption was observed at 6.5 for ASA and 5.5 for APAP by *oryza sativa* L. plants. The quantity of APAP absorbed by 11th leaf *Oryza sativa* L. plant incubated in medium having pH around 5.5 was enhanced by 24.687 % compared to plants incubated in neutral medium (pH=7), whereas the increase was only 1.103 %, in the case of absorption of ASA by plants under similar conditions. But at the optimal pH point for ASA absorption i.e. at 6.5 the increase in absorption was 11.067 % compare to plants incubated in neutral conditions.

Graphical Abstract



Absorption of APAP and ASA by *Oryza Sativa* L. plants

Keywords: Acetyl-para-aminophenol, Acetyl salicylic acid, Para Amino Phenol, Physiologically Active Organic Molecules, Salicylic Acid.