

Iron Mediated Uptake of Sulphur and Regulation of Sulphate Transporter in Wheat

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Abstract—Mineral nutrients interact with each other at soil as well as plant level either synergistically or antagonistically such as nitrogen (N) and sulphur (S), N and iron (Fe), S and Fe, etc. out of these interactions S and Fe interaction plays an important role in point of plant and human nutrition. Previous studies have shown that increasing S supply increases the Fe content of plants. We hypothesized as S is regulating the Fe uptake may be Fe supply is also crucial for S uptake. To investigate this we performed a field experiment with two levels of S i.e. 0 and 2.5 mM and two levels of Fe i.e. 0 and 80 μ M using bread and durum wheat cultivars. Observations recorded were S content, S concentration, translocation index of S, S use efficiency and relative expression of *SULTR1;1*, a high affinity sulphate transporter under different S and Fe treatment combinations. The results show increase in Fe supply increases the uptake of sulphur and also the relative expression of *SULTR1;1* is significantly increased under S deficient and Fe sufficient condition in durum wheat indicating an absolute requirement of Fe for its expression. So Fe supply also regulates the S uptake and S content in wheat.