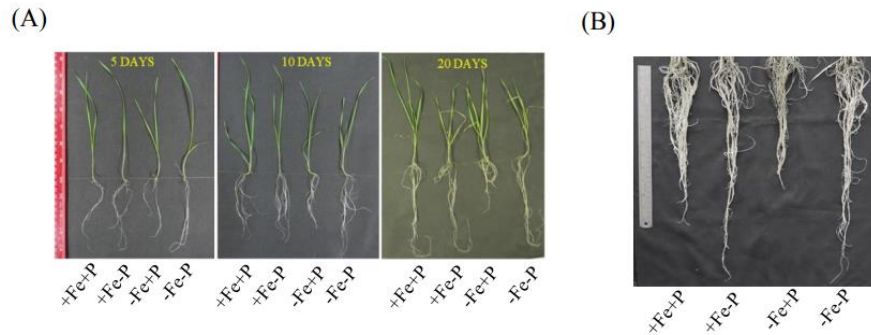


NABI's study pinpointed at the components involved in iron and phosphate interaction in wheat roots

At DBT's National Agri Food Biotechnology Institute (NABI), Mohali, scientist provided a comprehensive physiological and molecular analysis of hexaploid wheat response to single P/Fe and combined Fe and P deficiency. Data showed that wheat's primary root growth was inhibited in response to Fe and remarkably rescued by co-occurring deficiencies of Fe and P.



Transcriptome analysis revealed drastic and distinct molecular rearrangements to adapt the single and combined nutrient stress with dominance of Fe responsive cis-regulatory elements. Gene-based clustering and root-specific transcriptome expression analysis identify several important unique components induced in response to combined stress of $-Fe-P$, including UDP-glycosyltransferases and cytochrome-P450 and glutathione metabolism. Finally, at reproductive stage alleviations of the negative effect of Fe was also observed in $-Fe-P$ (*i.e.*, spikelet and grain development). Collectively, the data obtained is essential for designing new strategies to improve resilience of crops to cope with the limited nutrients in soils.

Iron (Fe) and phosphate (P) are essential mineral nutrients for plant growth and development. While it is known that Fe and P pathways interact within plants, however, understanding of the molecular mechanisms regulating nutrient interaction during plant vegetative and reproductive stages remains largely unknown.

Link: <https://www.biorxiv.org/content/10.1101/2020.05.26.117101v1?rss=1>

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