

DBT-RCB team finds salt and drought induced RING 1 protein has a role in plant immunity

New Delhi, Feb 11: Many plant encoded E3 ligases are known to be involved in plant defense. Here scientists at DBT- Regional Centre for Biotechnology (DBT-RCB), Faridabad report a novel role of E3 ligase salt- and drought-induced ring finger1 (SDIR1) in plant immunity.



Even though SDIR1 is reasonably well-characterized, its role in biotic stress response is not known. The silencing of SDIR1 in *Nicotiana benthamiana* reduced the multiplication of the virulent bacterial pathogen *Pseudomonas syringae* pv. *tabaci*. The *Arabidopsis* *sdir1* mutant is resistant to virulent pathogens, whereas SDIR1 overexpression lines are susceptible to both host and nonhost hemibiotrophic bacterial pathogens.

However, *sdir1* mutant and SDIR1 overexpression lines showed hypersusceptibility and resistance, respectively, against the necrotrophic pathogen, *Erwinia carotovora*. The mutant of SDIR1 target protein, SDIR-interacting protein 1 (SDIRIP1), also showed resistance to host and nonhost pathogens. In SDIR1 overexpression plants, transcripts of NAC

transcription factors were less accumulated and the levels of JA and abscisic acid (ABA) were increased. In *sdir1* mutants, JA signaling genes JAZ7 and JAZ8 were downregulated. These data suggest that SDIR1 is a susceptibility factor, and its activation/overexpression enhances disease caused by *P. syringae* pv. tomato DC3000 in Arabidopsis. Our results show a novel role of SDIR1 in modulating plant defense gene expression and plant immunity.

Dr. Ramu Vemanna along with his group members and collaborators published a research article on 'A novel role of salt and drought induced RING 1 protein in modulating plant defense against hemibiotrophic and necrotrophic pathogens (<https://doi.org/10.1094/mpmi-09-20-0257-r>).

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