

Helminthosporol was isolated from a fungus, *Helminthosporium sativum*, as a natural plant growth regulator in 1963. It showed gibberellin-like bioactivity that stimulated the growth of the second leaf sheath of rice. After studying the structure–activity relationship between the compound and some synthesized analogs, it was found that helminthosporic acid (H-acid) has higher gibberellin-like activity and chemical stability than helminthosporol. In this study, we showed that (1) H-acid displays gibberellin-like activities not only in rice but also in *Arabidopsis*, (2) it regulates the expression of gibberellin-related genes, (3) it induces DELLA degradation through binding with a gibberellin receptor (GID1), and (4) it forms the GID1-(H-acid)-DELLA complex to transduce the gibberellin signal in the same manner as gibberellin. This work shows that the H-acid mode of action acts as an agonist for gibberellin receptor.

Helminthosporic acid, a synthetic analog of fungus plant growth regulator “helminthosporol”, acts as an agonist for gibberellin receptor.

