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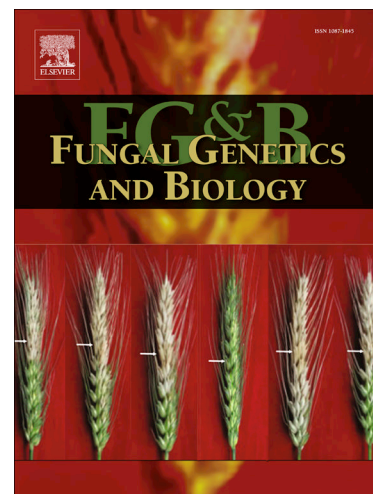
### Reactive Oxygen Species Metabolism and Plant-Fungal Interactions

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## Reactive Oxygen Species Metabolism and Plant-Fungal Interactions

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### Abstract

Fungal interactions with plants can involve specific morphogenetic developments to access host cells, the suppression of plant defenses, and the establishment of a feeding lifestyle that nourishes the colonizer often—but not always—at the expense of the host. Reactive oxygen species (ROS) metabolism is central to the infection process, and the stage-specific production and/ or neutralization of ROS is critical to the success of the colonization process. ROS metabolism during infection is dynamic—sometimes seemingly contradictory—and involves endogenous and exogenous sources. Yet, intriguingly, molecular decision-making involved in the spatio-temporal control of ROS metabolism is largely unknown. When also considering that ROS demands are similar between pathogenic and beneficial fungal-plant interactions despite the different outcomes, the intention of our review is to synthesize what is known about ROS metabolism and highlight knowledge gaps that could be hindering the discovery of novel means to mediate beneficial plant-microbe interactions at the expense of harmful plant-microbe interactions.

**Key words:** Reactive oxygen species; fungi; Nox complex; antioxidation; plant-associated microbes

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