Involvement of Nitric Oxide in the Process of Root Hair Formation Induced by Auxin in *Arabidopsis thaliana*

Moro, C. F.¹, Gaspar, M.², Braga, M. R.² Salgado, I¹

¹ Depto de Biologia Vegetal, Instituto de Biologia, Universidade Estadual de Campinas, São Paulo, Brazil
² Núcleo de Pesquisa em Fisiologia e Bioquímica, Instituto de Botânica, São Paulo, Brazil.

*Arabidopsis thaliana* has been used for studies of morphogenesis, differentiation, expansion, and cell polarity. The root hair represents a good model for these studies since it appears in large quantities, has polar growth, and shows known mechanisms of differentiation and cell elongation. It is known that the root hair formation (RHF) is genetically and hormonally regulated; however, recent studies suggest the contribution of nitric oxide (NO) in this process. To evaluate the involvement of NO in RHF, mutants root hairless (rhd6) were grown for 4 days in medium containing the auxin indole acetic acid (IAA) or S-nitrosoglutathione (GSNO, a NO donor) at different concentrations. Control group was grown in medium lacking inducer. The NO fluorescent probe diaminofluorescein-2 diacetate (DAF-2DA) was used to localize NO production in situ by confocal microscopy in roots treated with auxin. This hormone induced RHF throughout the elongation zone. Yet, NO emission was observed in hairs and around the epidermal cells. Exogenous GSNO induced an increase in the number of root hairs restricted to the region of shoot/root transition. It is suggested that NO and auxin act synergistically in RHF and that NO participates in this event because hairy roots emitted more NO than the roots hairless.

Word Keys: root hair, nitric oxide, auxin
Supported by: FAPESP