



Risk Assessment of Endophytes

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The human-associated bacterium *Propionibacterium acnes* as a grapevine endophyte

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Animals and plants have established a long-lasting cohabitation with a variety of microbes, including pathogens, commensals and beneficials. Studies investigating such associations documented numerous cases of bacterial host switches (usually from domestic animals to humans).

The exchange of microbial symbionts between humans and plants is much less investigated. We reported a surprising example of horizontal interkingdom transfer of the human opportunistic pathogen (*P. acnes*) to grapevine (*Vitis vinifera* L.). *P. acnes* was interestingly most common inside the plant's pith tissue. Phylogenetic and population analyses place that the establishment of the grapevine-associated *P. acnes* likely during the Neolithic, when grapevine was domesticated. The endophytic subspecies of *P. acnes* was named *P. Zappae*.

An analysis of Propionibacteria in the grapevine endosphere showed that *P. Zappae* is far from being the only species present in this plant as an endophyte.

Campisano, A., Ometto, L., Compant, S., Pancher, M., Antonielli, L., Yousaf, S., Varotto, C., Anfora, G., Pertot, I., Sessitsch, A., and Rota-Stabelli, O. (2014). Interkingdom transfer of the acne causing agent, *Propionibacterium acnes*, from human to grapevine. *Mol. Bio. Evol.* 2014 May;31(5):1059-65.

Yousaf S., Bulgari D., Bergna A., Pancher M., Quaglino F., Casati P., Campisano A. (2014). Pyrosequencing detects human-and animal pathogenic taxa in the grapevine endosphere. *Front Microbiol.* 2014 Jul 8;5:327.