

Piperine and Capsaicin - The Biosynthesis of Pungency

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Black pepper (*Piper nigrum*) and hot chili (*Capsicum spec.*) are among the world's most popular spices. Although they are derived from completely different plant families, they share compounds of similar molecular structure and identical cellular targets, piperine and capsaicin, respectively. Both compounds contribute to our pungent "taste" perception. In addition to their worldwide use as a spice, piperine and capsaicin demonstrate distinct anticancer, antimicrobial, and health promoting potential. Despite these numerous positive effects it seems surprising that we do not know much about their biosynthesis and cell biology in plants. This is specifically the case for piperine, where the pathway is still enigmatic, but also apparent in case of capsaicin accumulation where several biosynthetic steps are still a matter of debate. In this talk, I will summarize recent advances in the biosynthesis of both types of compounds revealed by biochemical and molecular tools.