

Immunomodulating and Revascularizing Activity of *Kalanchoe pinnata* Synergize with Fungicide Activity of Biogenic Peptide Cecropin P1

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Abstract

© 2017 N. S. Zakharchenko et al. Previously transgenic *Kalanchoe pinnata* plants producing an antimicrobial peptide cecropin P1 (CecP1) have been reported. Now we report biological testing *K. pinnata* extracts containing CecP1 as a candidate drug for treatment of wounds infected with *Candida albicans*. The drug constitutes the whole juice from *K. pinnata* leaves (not ethanol extract) sterilized with nanofiltration. A microbicide activity of CecP1 against an animal fungal pathogen *in vivo* was demonstrated for the first time. However, a favorable therapeutic effect of the transgenic *K. pinnata* extract was attributed to a synergism between the fungicide activity of CecP1 and wound healing (antiscar), revascularizing, and immunomodulating effect of natural biologically active components of *K. pinnata*. A commercial fungicide preparation clotrimazole eliminated *C. albicans* cells within infected wounds in rats with efficiency comparable to CecP1-enriched *K. pinnata* extract. But in contrast to *K. pinnata* extract, clotrimazole did not exhibit neither wound healing activity nor remodeling of the scar matrix. Taken together, our results allow assumption that CecP1-enriched *K. pinnata* extracts should be considered as a candidate drug for treatment of dermatomycoses, wounds infected with fungi, and bedsores.

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