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Antimicrobial properties of apis mellifera's bee venom (Review) (Open Access)

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Abstract

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Bee venom (BV) is a rich source of secondary metabolites from honeybees (Apis mellifera L.). It contains a variety of bioactive ingredients including peptides, proteins, enzymes, and volatile metabolites. The compounds contribute to the venom's observed biological functions as per its anti-inflammatory and anticancer effects. The antimicrobial action of BV has been shown in vitro and in vivo experiments against bacteria, viruses, and fungi. The synergistic therapeutic interactions of BV with antibiotics has been reported. The synergistic effect contributes to a decrease in the loading and maintenance dosage, a decrease in the side effects of chemotherapy, and a decrease in drug resistance. To our knowledge, there have been no reviews on the impact of BV and its antimicrobial constituents thus far. The purpose of this review is to address the antimicrobial properties of BV and its compounds. © 2020 by the authors.

SciVal Topic Prominence

Topic: Bee Venoms | Melitten | Phospholipases A2

Prominence percentile: 84.577

Author keywords

Antimicrobial properties | Apamin | Bee venom | Melittin | Phospholipase A2 (PLA2)

Indexed keywords

EMTREE drug terms: ampicillin | apamin | cefalotin | ceftazidime | ciprofloxacin | daptomycin | doripenem | gentamicin | honeybee venom | imipenem | linezolid | oxacillin | vancomycin

EMTREE medical terms:

amino acid sequence | antibacterial activity | antibiofilm activity | antibiotic resistance | antifungal activity | antimicrobial activity | antiviral activity | Apis mellifera | bactericidal activity | Borrelia burgdorferi | broth dilution | chemical structure | cytotoxicity | disk diffusion | drug mechanism | EC50 | enzyme linked immunosorbent assay | fractional inhibitory concentration index | hydrophobicity | IC50 | ID50 | MBC90 | methicillin resistant Staphylococcus aureus | methicillin susceptible Staphylococcus aureus | microtiter plate assay | minimum inhibitory concentration | nonhuman | Pseudomonas aeruginosa | reverse transcription polymerase chain reaction | Review | synergistic effect | viral plaque assay

Chemicals and CAS Registry Numbers:

ampicillin, 69-52-3, 69-53-4, 7177-48-2, 74083-13-9, 94586-58-0; apamin, 24345-16-2; cefalotin, 153-61-7, 58-71-9; ceftazidime, 72558-82-8; ciprofloxacin, 85721-33-1; daptomycin, 103060-53-3; doripenem, 148016-81-3; gentamicin, 1392-48-9, 1403-66-3, 1405-41-0; imipenem, 64221-86-9; linezolid, 165800-03-3; oxacillin, 1173-88-2, 66-79-5, 7240-38-2; vancomycin, 1404-90-6, 1404-93-9

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