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Editorial

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Bee Venom and Its Therapeutic Values

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Apitherapy is the medicinal therapeutic use of honeybee products, consisting of honey, propolis, royal jelly, pollen, beeswax and, in particular, bee venom. The aims of this paper were to review bee venom and its therapeutic values. Bee venom therapy is the therapy which utilizes the application of bee venom to treat various diseases and it has been used since ancient times in traditional medicine. Bee venom is produced by the venom gland located in the abdominal cavity and contains several biologically active peptides, including melittin (a major component of BV), apamin, adolapin, mast cell degranulating peptide, and enzymes (phospholipase A2, and hyaluronidase) as well as non-peptide components, such as histamine, dopamine, and norepinephrine. Bee venom has therapeutic values against variety of disease like Arthritis, nervous system diseases, heart and blood System abnormalities and for skin disease. Furthermore, Bee venom has been widely used in the treatment of some immune-related diseases, as well as in recent times in treatment of tumors. Several cancer cells, including renal, lung, liver, prostate, bladder, and mammary cancer cells as well as leukemia cells, can be targets of bee venom peptides such as melittin and phospholipase A2. In order to benefit from the promising role of bee venom therapy research should be extended to identify their specific component and target action.

Bee venom contains a variety of different peptides, including melittin, phospholipase A2, apamin, adolapin, and mast cell degranulating peptide (MCDP) (Kwon et al., 2002; Park et al., 2004). Among these compounds, melittin, a small linear peptide consisting of 26 amino acids, is the major component of bee venom. Depending on the disease being treated, BV therapy can be used by applying a cream, liniment, or ointment, via injection, acupuncture or even directly through a live bee sting . The most commonly used method is bee venom acupuncture (BVA), which involves the injection of diluted bee venom into acupuncture points. It can be employed as an alternative medicine in patients with PD, pain and other inflammatory diseases, such as rheumatoid arthritis and osteoarthritis . Bee venom has been used as a traditional medicine to treat back pain, rheumatism, and skin diseases by its antibacterial, antiviral, and anti-inflammatory effects. Moreover, several studies have demonstrated that bee venom and/or melittin have anti-cancer effects including prostate, liver, breast, cervical, renal cancer cells. Interestingly, BV has also been used in humans to treat neurological diseases with neuroinflammatory aspects, such as multiple sclerosis and Parkinson ’s disease.

Peptide is a potent anti-inflammatory agent; however, at low concentration it is a strong mediator of mast cell degranulation and histamine release from mast cells, which are present in the blood supply and in all tissues perfused by blood. Bradykinin is a physiologically active peptide that belongs to the kinin group of proteins. Bradykinin and related kinins act on two receptors, designated as B1 and B2. The former is expressed only as a result of tissue injury and it is thought to play a role in chronic pain. In contrast, the B2 receptor is constitutively expressed, participating in vasodilatation via the release of prostacyclin, nitric oxide, and endothelium-derived hyperpolarizing factor, thus contributing to lowering blood pressure. Adolapin is a peptide that was first isolated from bee venom in the 80s. It exerts a potent analgesic effect and anti-inflammatory activity in rats, blocking prostaglandin.