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A mystical scent: Clove's essential oil and its major component eugenol-induced marked relaxation in isolated diabetic rat corpus cavernosum**Alev Onder, Serap Gur, Didem Yilmaz-Oral and Ecem Kaya**
Ankara University, Turkey

Diabetes Mellitus (DM) is the second greatest risk factor for Erectile Dysfunction (ED), following age. Phosphodiesterase type-5 inhibitors (PDE5i), which are recommended as first-line treatment for ED, are not effective in the management of diabetes-associated ED. Currently, many medicinal plants and secondary metabolites are natural remedies for ED. A tropical plant, *Syzygium aromaticum* (L.) Merrill & Perry or clove (*Eugenia caryophyll*, *Caryophyllus aromaticus* L.) from the Myrtaceae family has aphrodisiac activity. In Europe, Asia and the oriental world, it has been used for culinary and medicinal purposes for centuries, either alone or in combination with other spices. It is reported to be used as sexual invigorators in India, besides many useful effects in the world. The plant simply contains polyphenols and Eugenol (E) which are the major components of the clove oil from aromatic flower buds (70-85%). The clove shows antioxidant, antimicrobial, antinociceptive, antiviral and cytotoxic properties. In the previous study, treatment with 50% ethanolic extract of clove significantly increased the sexual activity of normal male rats. The aim of this study is to investigate the possible beneficial effects of Clove Oil (CO) and its component E on rat Corpus Cavernosum (CC) from Streptozotocin-induced diabetic rats. 20 adult male Sprague-Dawley rats were equally divided into control and diabetic groups. Diabetes was induced by a single intraperitoneal injection of streptozotocin (45 mg/kg). Isolated rat CC strips were placed in organ baths containing Krebs solution. The relaxant responses to CO (25-100 μ L) and E (25-100 μ L) were investigated in rat CC after precontraction with phenylephrine (10^{-5} M). CO and E induced remarkable relaxations of CC strips in a concentration-dependent manner in control and diabetic rats (100%). As a conclusion, CO and E caused pronounced penile erection in diabetic rats. We suggest that both may be a successful treatment strategy in diabetic patients with ED who do not respond to PDE-5i.

Biography

Alev Onder is currently working as a Professor at Ankara University, Department of Pharmacognosy. She has spent a year in long-term research programs regarding the anticancer activity of coumarins and liverworts in Meiji Pharmaceutical College and Tokushima Bunri University in Japan and in Seoul National University, South Korea. She is a Lecturer of Aromatherapy and Natural Products. Currently, she has been investigating numerous modern medicinal plants for treatment of erectile dysfunction and in natural products (in particular on coumarins), essential oils, liverworts and their biological activity in pharmacognosy and phytochemistry.

pharmacogalev@gmail.com

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