

# Plant-Based Approaches to Enhancing Erectile Health

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## Description

Erectile dysfunction is the persistent or recurrent inability to achieve or maintain an erection sufficient for intercourse. Despite various treatment options, not all patients respond adequately and their usefulness is limited by adverse effects and cost. Botanical medicine and natural products have been and continue to be invaluable and untapped sources of new drugs, including potentially those to treat erectile dysfunction. The current literature on botanical medicine traditionally used as aphrodisiacs and treatment of erectile dysfunction, in particular, scientific and clinical investigations that have been performed, possible active phytoconstituents and mechanisms of action and to identify gaps in current knowledge to better guide future research efforts. A comprehensive literature search was conducted via PubMed, Scopus, Science Direct, and Web of Science on English publications, using various keywords, for example, "herb", "natural product", combined with "erectile dysfunction", "aphrodisiac", and "sexual performance".

## Medicinal plant overview

369 relevant articles studying medicinal plants used for erectile dysfunction were analyzed. A total of 718 plants from 145 families and 499 genera were reported to be used traditionally as aphrodisiacs and treatment of erectile dysfunction. Top plants used include *Pausinystalia johimbe*, *Lepidium meyenii* and *Panax ginseng*. Different plant parts are used, with roots being the most common. Less than half of these plants have been evaluated scientifically, using various research methodologies. Clinical trials conducted were collated. Current scientific investigation shows mixed results about their usefulness in enhancing sexual performance. A limited number of studies have attempted to elucidate the mechanisms of action of these medicinal plants. A comprehensive literature review on botanical medicine and natural products used for treatment of erectile dysfunction was successfully conducted. Although medicinal plants serve as a potential source of lead compounds for erectile dysfunction drugs, further studies are warranted to further evaluate their efficacy and safety. Male sexual dysfunction refers to the inability to achieve a satisfactory sexual relationship and includes Erectile Dysfunction (ED), diminished libido and abnormal ejaculation. ED, the most common form of impaired sexual function, is defined as a persistent or recurrent inability to achieve or maintain an erection sufficient for satisfactory sexual

performance and is also known as impotence in the Massachusetts Male Aging Study, conducted in non-institutionalized men aged. It was found that 52% of respondents reported some degree of ED.

## Current treatment options

The worldwide prevalence of ED has also been predicted to reach 322 million cases by the year although not life-threatening, ED is a distressing condition that not only has a negative impact on the physical and psychological health of the patient and their families but also their quality of life. Current medical interventions for ED treatment include pharmacotherapy, vacuum constriction devices, intracavernosal injection and surgical options. Oral Phosphodiesterase type 5 (PDE5) inhibitors are recommended as the first-line therapy and also the most widely used agents. Although various clinical studies have demonstrated the efficacy of PDE5 inhibitors, up to 35% of patients may still fail to respond to treatment. PDE5 inhibitors are also limited in tolerability because of the presence of adverse effects such as headaches, flushing and visual disturbances. In addition, high dropout rates exist where up to 50% of the patients stop treatment because of issues such as cost, inadequate efficacy and adverse events. As such, this has driven a continual search for novel compounds that are potentially efficacious as PDE5 inhibitors, well-tolerated and cost-effective. Natural products have been an invaluable source of novel therapeutic agents for the treatment of a wide plethora of diseases since the dawn of medicine. To date, natural products continue to be a vital starting point in the development of new therapeutics. According to the World Health Organization (WHO), 25% of modern medicine is either derived directly or inspired from plants first used traditionally.

## Natural drug impact

A review performed also revealed that of all the new approved drugs 26% were natural products or natural product derived and another 21% were natural product imitators. Thus, this has motivated a growing interest in medicinal plants that have traditionally been used as aphrodisiacs in response to the quest for more effective anti-ED drugs. The word "aphrodisiac" is derived from the name "Aphrodite", the Greek goddess of love and is defined as any agent that stimulates sexual desire. Thus, to overcome the problem of ED, aphrodisiac plants have been used through the centuries to enhance sexual performance. The

use of natural products also appeals to patients as they are purported to have health benefits beyond those related to ED and are supposedly more affordable than western medicine. Although there are review articles that evaluate and discuss the level of scientific evidence of specific medicinal plants for sexual performance enhancement, such as the use of plants in specific regions or traditional health-care systems there is currently no published report that provides a complete overview.