

# Precocious Puberty in Children: A Possible Remedy Involving Medicinal Plants

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## Abstract

The development and widespread use of pesticides have contributed to the enormous increase in agricultural yields associated with the "green" revolution. New pesticide registration procedures, like the Food Quality Protection Act in the US, have been introduced as a result of worries about the possible effects of pesticides on human health and the environment. The quantity of artificial pesticides available in agriculture has decreased as a result of these new laws. As a result, it might be necessary to reevaluate the existing paradigm of relying nearly entirely on chemicals for pest control. To replace the compounds lost as a result of the increased registration requirements, new pesticides are being discovered and produced, including insecticides based on natural products. This overview discusses the historical applications of natural products in farming, their influence on the creation of new pesticides, and the possibilities for pest management with natural products in the future.

**Keywords:** Medicinal Plants• Precocious puberty

## Introduction

One of the frequent endocrine illnesses in paediatrics is precocious puberty in children. Precocious puberty in youngsters has dramatically increased globally, according to epidemiological research. Precocious puberty has a severe impact on a child's physical and mental health and may raise the chance of grownup diabetes, obesity, hypertension, and infertility. In order to better understand how adolescents develop sexually, it is now crucial to understand the elements that lead to adolescence. Numerous studies have been able to demonstrate that autosomal inheritance is the primary cause of precocious puberty, thanks to advancements in molecular genetics. For instance, the gene for makorin ring finger protein 3 may play a role in familial CPP. Although gonadotropin-releasing hormone agonist is the gold standard for treatment, its security still needs to be monitored and managed over the long run. Clinical treatments and the investigation of cutting-edge treatment modalities have both utilised traditional medicinal herbs. According to the data gathered, traditional Chinese medicine in Asia treats precocious children and prevents or delays the onset of precocious puberty by using medicinal plants like Anemarrhena asphodeloides, Phellodendron amurense, Rehmannia glutinosa, and Poria cocos Wolf. These treatments are based on the principles of nourishing Yin, lowering fire, and draining fire from the liver. They are crucial in examining the pharmacological mechanisms underlying the therapeutic effects of precocious puberty and in the creation of new medications. As a result, by clarifying the occurrence and progression of premature puberty, this review offers fresh and insightful

information about paediatric endocrine therapy by referencing existing studies on the efficiency of traditional herbal medicine in the treatment of precocious puberty. An age range is specified for sexual precocity, and it is only allowed for local assessment and periodic modification throughout that time. The time of typical puberty and the upper age limit for sexual precocity were therefore studied by certain researchers. They discovered an increase in cases of pubertal development and early commencement of precocious precocity, mostly in females. Additionally, it was discovered that location, family context (including adopted children), and individual nutrition all influence the development of premature puberty. Danish children have been studied to discover the patterns in precocious puberty. Girls of Danish ancestry experienced a six-fold rise in occurrence. It is well recognised that a variety of elements, typically classified as central and external peripheral influences, have an impact on a child's sexual development. The activation of the HPG axis, which promotes the generation of high amounts of gonadotropins and the development of progressive sexual traits during puberty, results in early CPP.

## Remedy

Additionally, it has been linked to advanced bone age and accelerated linear growth. Clinical, biochemical, and ancillary radiological characteristics are used to make the diagnosis of CPP. Untreated CPP may lead to early epiphyseal fusion. Children's average height during their entire lives has an impact on it. Although gonadotropin-releasing hormone release from the hypothalamus has been correctly identified as the primary signal channel that prematurely activates and regulates reproductive function, the mechanisms of precocious puberty are still poorly understood. The inactivation of the makorin ring finger protein 3 gene, which could result in the premature reactivation of GnRH secretion, and the activation of peptin genes and peptin receptor. Familial central precocious puberty may start as a result of the molecular process of mutation. Physical examination (tanner stage), growth rate, bone age, and hormone levels are examples of current treatment indicators. These indicators need to be further assessed in conjunction with a B scan, computed tomography tests, and magnetic resonance imaging. These signs will continue to get the majority of the treatment's attention. It's critical to increase public knowledge about precocious puberty. Parents should be able to recognise the early signs of sexual development, comprehend the negative effects of premature development, and act quickly to get their children who are afflicted medical assistance. Diagnosed cases of premature puberty should start receiving treatment right away. If a youngster under the age of six begins treatment, improvements in long-term height are evident. However, the life-long improvement effect is typically not optimal in children older than 8 years old. Precocious puberty can be brought on by a variety of circumstances, including weight, illness, psychology, and the environment.

## Discussion

The subject of which elements contribute to improvement must nevertheless be brought up again and again. In the paper, it is analysed in the context of online pharmacology and literature that the main chemical components in these formulas are mainly flavonoids, sterols, and Anthraquinones from Anemarrhena asphodeloides Bge. Phellodendron amurense Rupr., Cornus officinalis, and so on, which play a role in regulating hormone levels, improving fat metabolism, and indirectly alleviating bone development. Some researchers have also discovered that sarsasapogenin can reduce the signs of precocious puberty in female rats, and they have suggested that this may be connected to the gonadal axis. This implies that pertinent elements might be looked for in order to explore both the creation of medicines and a more thorough explanation of their therapeutic processes for premature puberty. Therefore, it is funny that a future discus-

-sion could centre on how to enhance their benefits in the management of premature puberty. Administering various doses of oestrogen inhibitors, monitoring pituitary and uterine organ indices, checking serum hormone levels, and further analysing the therapeutic mechanism through network pharmacology, it was possible to create an animal model of precocious puberty. The findings led to the conclusion that oestrogen inhibition formulas could stop the HPG axis from developing too soon. In fact, it is evident from these herbal remedies that herbs are crucial to the management of premature puberty and also influence the choice of herbal remedies to be favoured in the future.

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