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A Review of the Anti-Fibroid Potential of Medicinal Plants: Mechanisms and Targeted Signaling Pathways

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ABSTRACT

Uterine fibroid or leiomyoma is the most common gynaecological disorder affecting women. Treatment of symptomatic fibroids to date has been surgical, consisting of total abdominal hysterectomy or myomectomy. To decrease surgery's impact, patients are progressively looking for uterus-protecting, negligibly obtrusive therapies/prevention for asymptomatic/symptomatic uterine fibroids. Medicinal plants/herbs and their active phytoconstituents have been used for the therapy of fibroids and associated uterine complications. Therefore, this review highlights mechanisms by which phytochemicals modulate fibroid growth pathways. To achieve this aim, we performed a systematic search within the two largest medical-related scientific databases, PubMed and SCOPUS. We considered all papers representing original research and reporting specific phytochemicals used in the studies. Of the 227 papers identified, only twenty-six of these met the required considerations: 80.77% in vitro, 15.39% in vivo, and 3.84% in silico. The most studied plants and phytoconstituents used in treatment/prevention to inhibit fibroid growth/proliferation pathways were: *Scutellaria barbata* D. Don, *Curcuma longa* L. (Turmeric), and resveratrol, curcumin, and anthocyanins, respectively. Also, the main pathways of target for fibroid inhibition were cell-cycle arrest, apoptosis through an increase in ROS above cell viability threshold, and inhibition of ECM proteins via reduction of growth factors. This review highlights natural anti-fibroid phytoextracts and the pharmacological mechanism by which they modulate fibroid pathways, thus providing key insights to developing new and innovative therapeutic options for the management of symptoms in women with uterine fibroids.

Keywords: Phytochemicals/phytoconstituents, uterine fibroids, signaling pathways, cell cycle, medicinal plants.

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