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Review Article

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"LODHRA (SYMPLOCOS RACEMOSA ROXB.) IN GYNAECOLOGICAL DISORDERS: CLASSICAL USE AND EXPERIMENTAL EVIDENCE — A NARRATIVE REVIEW"

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ABSTRACT:
Background: Lodhra, the stem bark of *Symplocos racemosa* Roxb., is one of the most frequently used drugs in Ayurvedic gynaecology. It is a constituent of classical formulations for abnormal uterine bleeding (Asrigdara or Pradara), vaginal discharge (Shweta pradara) and local therapies for Yonivyapad, and is widely sold in proprietary "uterine tonics". Its scientific evaluation has, however, been uneven. **Objective:** To review the classical description of Lodhra and its gynaecological indications, and to summarise the phytochemical, experimental and clinical evidence relevant to these uses. **Methods:** Classical texts (Charaka Samhita, Sushruta Samhita, Ashtanga Hridaya and Bhavaprakasha Nighantu) were reviewed for the properties, group memberships and gynaecological formulations of Lodhra. PubMed was searched up to October 2026 for studies on *Symplocos racemosa* and related species. Findings were synthesised narratively. **Results:** Classically, Lodhra is astringent, cold and Kapha-Pitta pacifying, and is placed in the Shonitasthapana (haemostatic), Sandhaniya (union-promoting) and Purishasangrahaniya (stool-binding) groups, which explains its use in bleeding and discharge disorders. Phytochemical studies report phenolic glycosides, triterpenoids such as betulinic and oleanolic acids, flavonoids and anthraquinones. Experimental studies show stimulation of gonadotropin release and folliculogenesis in immature rats, absence of estrogenic activity in a uterotrophic assay, androgenic activity in a yeast bioassay, and antimicrobial, antibiofilm, anti-inflammatory, analgesic and wound-healing effects. No randomised clinical trial of Lodhra as a single drug in any gynaecological condition was identified. **Conclusion:** The classical indications of Lodhra are biologically plausible, particularly for discharge and local mucosal conditions, but its reputation in menstrual and fertility disorders rests on traditional use and a small number of animal studies. Standardised preparations, safety testing and controlled clinical trials are needed.

KEYWORDS: Lodhra, Symplocos racemosa, Pradara, Yonivyapad, Shonitasthapana, leucorrhoea

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INTRODUCTION

Disorders of menstruation and vaginal discharge are among the commonest reasons women in South Asia seek care from practitioners of Ayurveda. Heavy menstrual bleeding alone accounts for a substantial share of gynaecological consultations in India, and its burden is magnified by the high prevalence of anaemia among Indian women[1]. Although conventional treatments are effective, many women use traditional preparations either alone or alongside them, and Ayurvedic formulations for menorrhagia are now being tested in formal clinical studies[1,2].

Among the plant drugs used for these complaints, Lodhra holds a particular place. Ayurvedic and ethnobotanical sources record the use of *Symplocos racemosa* Roxb. (family Symplocaceae) for uterine disorders, leucorrhoea, menorrhagia, bleeding gums, eye diseases, liver and bowel complaints and wounds[3,4]. Its stem bark is a constituent of many classical and proprietary formulations prescribed for abnormal uterine bleeding, vaginal discharge and infertility, and it is frequently included in local preparations for the vagina and cervix[3,5].

Despite this extensive use, the evidence base for Lodhra has developed in a fragmented way. A large body of phytochemical work, much of it from Pakistan and India, has characterised its constituents, while pharmacological studies have examined a wide range of activities, often unrelated to gynaecology[3,4]. A small number of studies have addressed reproductive endpoints directly[6–8]. The aim of this review is to bring together the classical understanding of Lodhra and the experimental evidence, to assess how far the second supports the first, and to identify the research needed before Lodhra-based products can be recommended with confidence in integrative gynaecological care.

METHODOLOGY

This narrative review was prepared in two parts. First, the classical texts of Ayurveda, namely Charaka Samhita (Sutra sthana, chapter 4, and Chikitsa sthana, chapter 30), Sushruta Samhita (Sutra sthana, chapter 38), Ashtanga Hridaya (Sutra sthana, chapter 15) and Bhavaprakasha Nighantu, were studied with their standard commentaries for the properties of Lodhra, the drug groups in which it appears and the gynaecological formulations that contain it[9–12]. Second, PubMed was searched for literature published up to October 2026 using combinations of the terms *Symplocos racemosa*, Symplocos, Lodhra, Pushyanuga, uterine, ovarian, estrogen, polycystic, leucorrhoea, menorrhagia, heavy menstrual bleeding and Ayurveda. Reviews, experimental studies, phytochemical studies, quality and safety studies and clinical studies were considered. Every reference cited in this article was checked against its PubMed record for authors, title, journal, year, volume, pages and digital object identifier. Retracted publications identified during the search were excluded. The findings are synthesised narratively rather than statistically.

BOTANICAL IDENTITY AND SOURCES

1. The plant

Symplocos racemosa Roxb. is a small evergreen tree of the unigeneric family Symplocaceae, distributed in tropical and subtropical regions, including the sub-Himalayan tracts and hills of India[3]. The stem bark is the official part used in Ayurveda. The genus Symplocos contains many species, several of which are used in traditional medicine for gynaecological disorders, leucorrhoea and menorrhagia[4].

2. Identity, substitution and conservation

Authenticity is a practical concern. In parts of southern India, *Symplocos cochinchinensis* is used under related vernacular names and is the main ingredient of the Kerala decoction Nisakathakadi for diabetes[13]. Pharmacological findings for one species cannot be assumed to apply to another, and published studies on Lodhra should be read with attention to the species and plant part actually tested. Conservation data for the genus also indicate a risk of extinction owing to restricted wild distribution, which has implications for sustainable sourcing and adulteration[3]. Quality and safety are discussed further in the Safety and Quality section.

CLASSICAL AYURVEDIC UNDERSTANDING OF LODHRA

1. Pharmacological properties

In the Ayurvedic pharmacological framework, Lodhra is described as astringent (Kashaya) in taste, light (Laghu) and dry (Ruksha) in quality, cold (Sheeta) in potency, and pacifying to Kapha and Pitta[12]. It is regarded as Grahi (absorbent and binding), Chakshushya (beneficial to the eyes) and useful in bleeding disorders (Raktapitta), diarrhoea, oedema

and poisoning[12]. Bhavaprakasha recognises two varieties, often termed Pattika lodhra and Shabara lodhra, with broadly similar actions[12].

2. Group memberships

The clearest statement of Lodhra's therapeutic profile comes from the groups (Gana or Mahakashaya) in which the classical authors placed it. Charaka includes Lodhra among the Shonitasthapana (haemostatic) drugs, the Sandhaniya (union-promoting) drugs and the Purishasangrahaniya (stool-binding) drugs[9]. Sushruta and Vagbhata describe a Lodhradi gana, a group headed by Lodhra, which is indicated for Kapha disorders, obesity, vaginal disorders (Yonidosha) and as an astringent and stabilising group[10,11]. The common thread is the astringent, drying and stabilising action that the classical authors expected to arrest abnormal secretions and bleeding, and to promote the healing of mucosal surfaces.

3. Gynaecological indications and formulations

Lodhra appears repeatedly in the classical treatment of Yonivyapad and Pradara. In Charaka's chapter on gynaecological disorders, Pushyanuga churna, a compound powder in which Lodhra is one of many astringent ingredients, is recommended for Pradara of different types, vaginal discharges and related disorders[9]. Lodhra is also used in local therapies, including vaginal douches (Yoni prakshalana), medicated pessaries (Yoni varti) and tampons soaked in decoctions or oils (Yoni pichu), for Kapha- and Pitta-dominant vaginal disorders with discharge, burning or laxity[9,11]. Later compilations such as Bhaishajya Ratnavali carry many Pradara formulations containing Lodhra, and the drug remains part of widely used contemporary products for menorrhagia, leucorrhoea and cervical erosion[3,5].

4. Interpretation in modern terms

Translated into modern terms, the classical description suggests three main lines of action relevant to gynaecology. The first is haemostatic and astringent activity, relevant to heavy menstrual and intermenstrual bleeding. The second is anti-secretory, antimicrobial and anti-inflammatory activity on mucosal surfaces, relevant to vaginal discharge, vaginitis and cervicitis. The third is a possible modulatory effect on the reproductive endocrine system, implied by its traditional use in infertility and menstrual irregularity. Each of these hypotheses can be examined against the available experimental evidence.

PHYTOCHEMISTRY AND EXPERIMENTAL EVIDENCE

1. Phytochemical constituents

Most phytochemical work has concerned the stem bark. A comprehensive review in this field reported phenolic glycosides such as symplocoside and salireposide, triterpenoids including betulinic acid, acetyloleanolic acid and oleanolic acid, and flavonoids including quercetin[3]. A review of the wider genus Symplocos noted that terpenoids are its major constituents and that phenolic glycosides, lignans, steroids, alkaloids and iridoids also occur[4]. More recent isolation studies have added a novel isoflavone glycoside and 15 known flavonoids from the aerial parts[14] and new alkyl-substituted anthraquinone derivatives[15]. Constituents with documented enzyme-inhibitory activity include phenolic glycosides that inhibit thymidine phosphorylase and endothelial cell migration and invasion in vitro[16], and an ethyl-substituted glycoside with lipoxygenase-inhibiting activity[17]. Collectively, tannins, flavonoids and phenolic glycosides offer a plausible chemical basis for the classical astringent and anti-inflammatory actions, although the specific contributors to any gynaecological effect have not been established.

2. Effects on the hypothalamic–pituitary–ovarian axis

The most frequently cited reproductive study administered an aqueous extract of *S. racemosa* orally to immature female Sprague-Dawley rats. The extract significantly raised serum follicle-stimulating hormone and luteinising hormone, increased ovarian weight and, on histology, enhanced folliculogenesis with mature follicles and detached oocytes[6]. The authors interpreted these findings as consistent with the traditional use of Lodhra for female disorders[6]. The study was small, was conducted under basal conditions in immature animals and did not identify the active constituents, so it supports a hypothesis of gonadotropin-mediated ovarian stimulation rather than demonstrating a therapeutic effect in women.

Lodhra is often described in popular literature as a phytoestrogen. This claim was tested directly in a uterotrophic assay in 22-day-old female rats, in which *S. racemosa* (270 mg/kg) produced no change in body weight, uterine weight, vaginal opening, uterine histomorphology or uterine glycogen, in contrast to ethinyl estradiol; a combination of *Saraca indica* and *S.*

racemosa produced only a slight increase in luminal epithelial height, which the authors described as questionable estrogenic activity[7]. On present evidence, therefore, Lodhra should not be described as estrogenic.

A further study screened Indian plants for androgenic and antiandrogenic activity in a yeast androgen bioassay. *S. racemosa* showed androgenic rather than antiandrogenic properties and was not taken forward to the in vivo model of polycystic ovary syndrome, in which other plants were tested[8]. This finding is relevant because Lodhra is sometimes promoted for polycystic ovary syndrome. A yeast bioassay cannot predict effects in women, but an androgenic signal argues for caution rather than enthusiasm in a condition defined by hyperandrogenism, and the question deserves specific investigation.

3. Antimicrobial and antibiofilm activity

The classical use of Lodhra in vaginal discharge and in local therapies is consistent with its antimicrobial profile. In one study, the ethyl acetate extract of the bark was the most active of several organic extracts, and its flavonoid fraction was active against reference strains and drug-resistant clinical isolates of *Escherichia coli*, methicillin-resistant *Staphylococcus aureus* and *Salmonella* species; the phytoconstituents inhibited biofilm formation and disrupted pre-formed biofilms[18]. Anthraquinone derivatives isolated from the plant showed antibacterial activity against *Streptococcus mutans*, methicillin-resistant *S. aureus* and *Proteus mirabilis*, with antibiofilm effects at sub-inhibitory concentrations[15]. None of these studies tested the organisms most relevant to vaginal discharge, namely *Candida* species, *Gardnerella vaginalis* and other organisms associated with bacterial vaginosis, or *Trichomonas vaginalis*. This is an obvious and inexpensive gap for future work.

4. Anti-inflammatory, analgesic and antidiarrhoeal activity

A study of the bark extract reported reduced smooth-muscle tone in isolated rabbit intestine and significant anti-inflammatory and analgesic effects at 300 and 500 mg/kg in carrageenan-induced paw oedema, hot plate, writhing and formalin tests in rodents[19]. The antidiarrhoeal finding corresponds to the classical Purishasangrahaniya action, while the anti-inflammatory and analgesic findings are relevant to inflammatory pelvic and vaginal conditions. The lipoxygenase-inhibiting constituent described above offers one possible mechanism[17].

5. Wound healing and mucosal protection

The Sandhaniya action of Lodhra corresponds to wound healing. A review of Indian plants with wound-healing activity identified *S. racemosa* among the Ayurvedic drugs found effective in experimental models[20]. This activity provides a rationale for its inclusion in local preparations for cervical erosion. Darvyadi yoni varti, a pessary containing Sphatika (alum), Daruharidra, Haridra and Lodhra, has been standardised for the management of Garbhashaya grivamukhagata vrana (cervical erosion), with a pH of 5.0 and reproducible chromatographic fingerprints[5]. A comparable rationale underlies the use of Lodhra in combinations for mucosal bleeding outside gynaecology; in an uncontrolled series of 43 patients with ulcerative colitis, a regimen that included a combination of Musta, Nagakesara and Lodhra with other oral medicines and medicated enemas was associated with reduced bleeding and lower steroid requirements[21], although the contribution of Lodhra cannot be separated from that of the other components.

6. Other activities

The bark extract has also shown hepatoprotective and antioxidant effects in carbon tetrachloride-induced liver damage in rats, published in this journal[22], and antimicrobial and antiproliferative effects of its flavonoids against cancer cell lines without cytotoxicity to normal Vero cells[18]. These activities are not directly gynaecological but contribute to the overall safety and pharmacological profile.

SAFETY AND QUALITY

Acute toxicity data are reassuring but limited. In the antimicrobial study described above, the phytoconstituents were non-mutagenic in the Ames test and non-cytotoxic in the MTT assay, and the flavonoid fraction produced no abnormalities in body weight, clinical signs, biochemistry or organ histology in an acute oral toxicity study in Swiss albino mice[18]. Repeated-dose, reproductive and developmental toxicity studies, which matter for a drug often given to women trying to conceive, were not identified.

Contamination is a further concern. In an analysis of 80 commonly consumed herbal medicines from local markets in Hyderabad, 10% of samples contained at least one heavy metal above the limits of the Ayurvedic Pharmacopoeia of India, and the estimated daily

intake of chromium was higher through consumption of amla, brahmi and lodhra bark than through other metals[23]. Together with the risk of species substitution noted in the subsection on identity, substitution and conservation, this finding emphasises the need for pharmacopoeial identity testing, heavy metal screening and good manufacturing practice for Lodhra and products containing it.

CLINICAL EVIDENCE

No randomised controlled trial of Lodhra as a single drug in any gynaecological condition was identified in PubMed. Lodhra is usually given as part of compound formulations, and most published clinical work on Ayurvedic management of heavy menstrual bleeding concerns formulations based on Ashoka (*Saraca asoca*). An open-label study of an Ashoka-based syrup in 228 women with heavy menstrual bleeding reported a 58% reduction in pictorial blood loss assessment chart scores over 90 days, but had no control group[2]. A randomised trial comparing Ashokarishta with Trinakantamani pishti against tranexamic acid is in progress[1]. These studies illustrate both the growing interest in Ayurvedic treatment of menorrhagia and the near absence of controlled evidence for Lodhra itself. The combination of Ashoka and Lodhra, which is common in practice, has been examined only in the rat uterotrophic assay described above[7].

For vaginal discharge and cervical erosion, Lodhra-containing pessaries and douches are widely used, and at least one formulation has been standardised[5], but published controlled clinical evaluations of these preparations are lacking in PubMed-indexed literature.

DISCUSSION

This review shows that the classical case for Lodhra in gynaecology rests on a consistent theoretical foundation. Its astringent taste, cold potency and drying qualities, together with its membership of the haemostatic, union-promoting and stool-binding groups, lead naturally to its use in conditions characterised by excessive bleeding, excessive discharge and impaired mucosal integrity[9–12]. Experimental findings of antimicrobial, antibiofilm, anti-inflammatory, analgesic and wound-healing activity are broadly consistent with these indications[15,17–20], and the plant contains tannins, flavonoids and phenolic glycosides that plausibly mediate them[3,4].

The evidence is weaker and less coherent for the endocrine and fertility claims often attached to Lodhra. The gonadotropin study in immature rats[6] is the only direct support, and it has not, to our knowledge, been replicated. The uterotrophic assay found no estrogenic activity[7], and the yeast bioassay suggested androgenic activity[8]. The popular description of Lodhra as a phytoestrogen and its promotion for polycystic ovary syndrome are therefore not supported by the experimental literature, and practitioners should be cautious when recommending it in hyperandrogenic conditions until clinical data are available.

The clinical gap is the most important finding. Lodhra is one of the most widely used drugs in Ayurvedic gynaecology, yet there are no controlled trials of the single drug and few of Lodhra-containing compound formulations. Several research priorities follow. First, authenticated, chemically standardised bark extracts should be developed, with marker compounds such as salireposide, betulinic acid or quercetin, and with routine heavy metal testing[3,23]. Second, the antimicrobial activity of standardised extracts should be tested against *Candida*, bacterial vaginosis-associated organisms and *Trichomonas*, and the effect of vaginal formulations on vaginal pH and microbiota should be studied. Third, randomised trials of Lodhra-containing local therapies in non-specific vaginal discharge and cervical ectropion, and of oral formulations in heavy menstrual bleeding, should use validated outcomes such as pictorial blood loss assessment charts and symptom scores[1,2]. Fourth, the gonadotropin and androgen findings should be re-examined with modern endocrine assays before Lodhra is promoted for ovulatory disorders.

From a clinical perspective, Lodhra-containing formulations can reasonably be used within Ayurvedic practice for heavy menstrual bleeding and non-specific vaginal discharge, provided that structural, malignant, infective and sexually transmitted causes have been excluded by appropriate examination and investigation. Women with heavy or irregular bleeding, postmenopausal bleeding, offensive or blood-stained discharge, or a suspicious cervix require biomedical evaluation before or alongside Ayurvedic treatment.

CONCLUSION

Lodhra is a classical astringent, haemostatic and mucosa-healing drug whose place in Ayurvedic gynaecology is well grounded in the classical texts. Experimental studies support antimicrobial, anti-inflammatory, analgesic and wound-healing actions relevant to vaginal discharge and local therapies, but the claims for estrogenic or fertility-enhancing activity are weakly supported or contradicted. Well-designed clinical trials of authenticated and standardised Lodhra preparations, with attention to safety and contamination, are needed before its widespread use can be considered evidence based.

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