

Development and Standardization of Guggulu-Based Ksharasutra: An Ayurvedic Approach to Fistula-in-Ano Management

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Abstract

Ksharasutra is a specialized Ayurvedic para-surgical medicated thread extensively used in the management of anorectal disorders, particularly fistula-in-ano (*Bhagandara*). Conventional *Apamarga Ksharasutra* is highly effective but may cause burning sensation because of its strong alkaline nature. *Guggulu*-based *Ksharasutra* has been developed as an alternative by incorporating *Triphala Shodhita Guggulu*, *Apamarga Kshara*, and *Haridra Churna* to enhance anti-inflammatory, antimicrobial, and wound-healing properties while maintaining therapeutic efficacy. The preparation involves coating Barbour linen thread No. 20 with 21 sequential layers comprising 11 coatings of *Shodhita Guggulu*, 7 coatings of *Guggulu* with *Apamarga Kshara*, and 3 final coatings of *Guggulu* with *Haridra Churna*, followed by controlled drying in an ultraviolet-equipped *Ksharasutra* cabinet and sterile packaging. This standardized method ensures uniform coating, sterility, and quality of the medicated thread. The combined pharmacological actions of *Guggulu*, *Apamarga Kshara*, and *Haridra* facilitate controlled chemical debridement, reduce inflammation, prevent microbial contamination, and promote faster wound healing. Thus, *Guggulu*-based *Ksharasutra* represents a promising and standardized Ayurvedic alternative for the effective management of Fistula-in-ano with the potential to improve patient comfort and clinical outcomes.

Key words : *Bhagandara*, Fistula-in-ano, *Ksharasutra*, *Shodhita Guggulu* Powder, *Haridra Churna*, *Apamarga Kshara*.

Ksharasutra is a specialized medicated thread used in *Ayurveda* for the management of anorectal disorders such as Fistula-in-Ano and hemorrhoids. It is prepared by coating a surgical linen thread with different combinations of herbal latex, which serves as a binding

agent, and alkaline plant-derived ash, which provides cauterizing properties. The composition of these coatings can be modified to meet specific therapeutic requirements and individual patient needs. The standard *Apamarga Ksharasutra* is prepared by coating a surgical linen thread with the latex of *Snuhi* (*Euphorbia neriifolia*), *Apamarga* (*Achyranthes aspera*) alkali, and *Haridra* (turmeric). It functions as an effective chemical seton by facilitating the gradual cutting and drainage of the fistulous tract. However, due to its strong alkaline properties, it may produce a burning sensation during treatment. *Guggulu Ksharasutra* is prepared using *Guggulu* (*Commiphora mukul*) as a key coating ingredient. Owing to its potent anti-inflammatory and wound-healing properties, it is widely employed in the treatment of hemorrhoids and complex fistula-in-ano, promoting effective healing while reducing local inflammation. For the preparation of the manuscript relevant literature¹⁻⁵ has been consulted.

Preparation of Guggulu Based Ksharasutra Thread:

➤ **Materials :** Drugs - *Haridra Churna*, *Triphala Shodhita Guggulu powder*, *Apamarga Kshara*, Barbour thread no. 20, *Ksharasutra* Cabinet with Ultraviolet Light, Plastic container, Plastic Taste Tubes, Gauze pieces and Gloves.

➤ **Preparation :** Linen thread was tied throughout the length and breadth of the hangers which was then mounted over hanger stand. Each thread on the hanger was then smeared with *Shodhita Guggulu* with the help of the clean gauze piece and the hanger then was replaced into the cabinet. When all the hangers were processed, the cabinet closed properly and the hot air was blown in order to dry the threads. 11 such coatings with *Shodhita Guggulu* was done. The twelfth coating was done by first smearing the thread with the *Shodhita Guggulu* and then passing the wet thread through a heap of finely powdered



Preparation of Guggulu Based Ksharasutra Thread

Figure 1. Preparation of *Guggulu* based *Ksharasutra* Thread

Apamarga kshara. Total 7 times process done. In the final phase, 3 coatings of *Haridra* powder and *Shodhita Guggulu* were given. Thus, 21 coatings over the thread were complete. Threads were allowed to dried. *Ksharasutra* was stored into sterile plastic taste tubes.

Guggulu-based *Ksharasutra* is a standardized modification of the conventional *Ksharasutra* designed to improve patient comfort while maintaining therapeutic efficacy in the management of Fistula-in-Ano. The combination of *Triphala Shodhita Guggulu*, *Apamarga Kshara*, and *Haridra Churna* provides synergistic anti-inflammatory, antimicrobial, debridement, and wound-healing properties. The standardized 21-coating technique, controlled drying, ultraviolet sterilization, and sterile packaging ensure uniform drug distribution, product quality, and reproducibility. Compared with the conventional *Apamarga Ksharasutra*, the *Guggulu*-based formulation is expected to reduce local irritation and burning sensation while promoting effective tract healing. However, further physicochemical and comparative clinical studies are required to establish its long-term efficacy and safety.

Guggulu-based *Ksharasutra* represents a promising modification of the traditional Ayurvedic medicated thread by incorporating *Triphala Shodhita Guggulu*, *Apamarga Kshara*, and *Haridra Churna* into a

standardized preparation process. The medicated thread combines effective chemical debridement with anti-inflammatory, antimicrobial, and wound-healing properties, making it a suitable alternative for the management of Fistula-in-Ano and other anorectal disorders. Standardized coating, controlled drying, ultraviolet sterilization, and sterile packaging ensure product quality, uniformity, and safety. Although the theoretical and pharmacological advantages are encouraging, further experimental and clinical studies are necessary to confirm its long-term efficacy, safety, and patient outcomes compared with the conventional *Apamarga Ksharasutra*.

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