



AGNIHOTRI COLLEGE OF PHARMACY

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RESEARCH ARTICLE

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Polyherbal Antibacterial Vaginal Spray - Formulation and Evaluation

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Abstract: An attempt has been made to formulate and evaluate polyherbal antibacterial vaginal spray with respect to its organoleptic characteristics. Antibacterial vaginal spray was prepared using herbal extracts of Liquorice, Ashwagandha (Root powder), *Ocimum sanctum* (Tulsi), Neem leaves, *Syzygium cumini* root powder (Jamun tree), Tankan bhasma (calcined borax), Turmeric, Menthol, Lodhoo (Symlocos bark powder), Triphala and Alovera gel in six different formulations (F1- F6) and were evaluated for organoleptic properties like colour, odour, homogeneity, density, viscosity, pH, quantity delivery in single spray and found within standards. Antimicrobial study of polyherbal formulations was performed by cup plate method for zone of inhibition and two folds dilution method for MIC (Minimum Inhibitory Concentration) and showed excellent antibacterial activity against *E. coli* by F6 formulation as compare to F1-F5. Optimized F6 formulation was subjected for stability studies at different temperature like 25°C, 37°C and 45°C for 2 weeks, showed no change in color as well as phase separation.

INTRODUCTION

Plants are the oldest source of pharmacologically active compounds and have provided human kind with many medicinally useful compounds from centuries. Today, more than two thirds of the world's population rely on plant derived drugs. The origin of many effective drugs is found in the traditional medicinal practices and in view of this, it is very important to undertake studies pertaining to screening of the medicinal plants for their pro claimed biological activity. Numerous studies have been conducted with the extracts of various plants, screening antibacterial activity. [1-3]

Herbal extracts are primarily intimate female hygiene preparations due to several associated properties such as antioxidant, antibacterial and anti-inflammatory properties. [4]

Literature review elucidate herbs contains various medicinal properties and formulated as herbal hand sanitizer from Indian herbs, [5] novel herbal ointment for the treatment of fungal infection, [6] herbal antibacterial face packs, [7] antibacterial efficiency of water-based herbal hand sanitizer gel, [8] poly herbal lotion containing *Trigonella foenum-graecum*, *Citrus lemon*, *Matricaria chamomilla* and *Cymbopogon citrates*, [9] evaluation of gels and creams preparation for *in-vitro* antibacterial activity, [10] assessment of chemo preventive, radioprotective and antineoplastic properties, [11] antimicrobial efficacy and safety of herbal sanitizer, [12] anti-bacterial and anti-fungal activity of a herbal ointment containing *Aloe-vera*, *Azadirachta indica* and *Curcuma- longa*. [13]

Female suffer from vaginal infection on daily basis and most of the problems arise by using public and unhygienic toilets. Sometimes because of hygiene reasons, some females do not use toilets or urinals. To eliminate the risk of urinary tract infections or any other infection which may rise to many other diseases, there is a need of an antibacterial formulation which may use on daily basis after urination to maintain female hygiene and eliminate vaginal infection. Natural remedies are more acceptable in the belief as they are safer with fewer side effects than the

synthetic ones. [14] Herbal formulations have emergent demand in the global market. By considering importance of this, an attempt has been made to develop herbal spray.

MATERIALS AND METHODS

The study was conducted between 02 January 2022 to 30 April 2022 and carried out in Pharmaceutical Microbiology Laboratory of Agnihotri College of Pharmacy, Wardha. *Ocimum Sanctum* (Tulsi), *Syzygium cumini* root powder (Jamun tree), Tankan bhasma (calcined borax), Lodhra (Symlocos bark powder) was collected from Dhanorkar Ayurveda Hospital, Chandrapur whereas Ashwagandha, Liquorice, Neem leaves, Menthol, Glycerin, Rose water, Triphala, Propylene glycol, Turmeric, Alovera gel were collected from Agnihotri College of Pharmacy, Wardha. Ingredients used for the preparation of polyherbal antibacterial vaginal spray, stock solution and various polyherbal formulations are shown in Figure 1 and Figure 2 respectively and enlisted in Table 1.

Preparation of Extract

Antibacterial polyherbal formulations (F1 - F6) were prepared separately by measured quantity of ingredients as shown in Table 2 and was extracted by Soxhlet extraction, filtered by using whatman filter paper and filled it in empty transparent refillable spray bottle.

Evaluation of Polyherbal Antibacterial Vaginal Spray

1. Determination of pH

pH of the prepared formulations was measured using digital pH meter.

2. Determination of Organoleptic Parameters

The colour, odour and homogeneity of prepared formulations were visually determined.

3. Determination of Viscosity

Viscosity of prepared formulations was evaluated by using Ostwald viscometer.

4. Determination of Spray Volume

Quantity of spray volume was measured by spraying number of sprays in measuring cylinder and calculated number of millilitre.

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