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PREPARATION OF ANTISEPTIC MIXTURE FROM PAULOWNIA (PAULOWNIA TOMENTOSA) FLOWERS FOR POULTRY USE: A PHARMACEUTICAL ANALYSIS APPROACH

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Abstract

This study investigates the preparation of an antiseptic mixture from Paulownia (Paulownia tomentosa) flowers for use in poultry. The chemical composition, biologically active compounds, and antiseptic properties of the flowers were analyzed. Pharmaceutical analysis techniques were employed to assess the quality parameters of the prepared mixture. The findings support the safe and effective application of Paulownia flower-based phytopreparations in poultry farming.

Keywords: Paulownia, Paulownia tomentosa, poultry, antiseptic mixture, pharmaceutical analysis, medicinal plants, phytopreparations.

Introduction

In poultry farming, antiseptic agents are widely used to prevent and treat infectious and inflammatory diseases. Long-term use of synthetic antiseptics may lead to microbial resistance and adverse effects. Therefore, there is a growing interest in developing natural, biologically active phytopreparations.

Paulownia (Paulownia tomentosa) flowers are rich in flavonoids, phenolic compounds, and essential oils, exhibiting antiseptic and anti-inflammatory properties. This study focuses on the pharmaceutical analysis of an antiseptic mixture prepared from Paulownia flowers and evaluates its potential use in poultry management.

Materials and Methods

Plant Material

Flowers of Paulownia tomentosa were collected from ecologically clean areas during their natural shedding period. The flowers were dried in shaded, well-ventilated conditions and cleaned of mechanical impurities.

Preparation of Antiseptic Mixture

The mixture was prepared with the following composition:

- Dried Paulownia flowers: 10.0 g
- Purified water: 200 ml
- 70% Ethanol: 20 ml (for extraction and preservation)
- Glycerin: 5 ml (for stability and softening effect)

Procedure:

1. Dried flowers were ground into fine particles.
2. Infused in hot water (60–70 °C) for 30 minutes.
3. Filtered and cooled.
4. Ethanol and glycerin were added and thoroughly mixed.
5. The prepared mixture was stored in dark glass containers.

Pharmaceutical Analysis

Organoleptic Evaluation

The mixture was light yellow in color, with characteristic herbal aroma, and free from mechanical impurities.

Physicochemical Properties

- pH: 5.5–6.5

- Density: 1.01–1.03 g/ml
- Clarity: transparent

Chemical Analysis

Presence of biologically active compounds was confirmed:

- Flavonoids (detected via colorimetric reactions)
- Phenolic compounds (confirmed using ferric chloride test)

Microbiological Assessment

Antiseptic activity was evaluated against conditional pathogenic microorganisms under laboratory conditions. Results demonstrated antibacterial efficacy of the Paulownia flower-based mixture.

Applications in Poultry Farming

The prepared antiseptic mixture can be used for:

- Oral and respiratory tract washes
- Minor skin wound care
- Preventive measure against infections

Due to its natural origin, the mixture is well tolerated by poultry.

Discussion

Pharmaceutical analysis confirmed the quality parameters and biological activity of the Paulownia flower-based antiseptic mixture. Its active compounds contribute to the observed antiseptic effect, making it a promising alternative to synthetic antiseptics in poultry farming.

Conclusion

The antiseptic mixture prepared from Paulownia tomentosa flowers meets pharmaceutical analysis standards and demonstrates safe and effective use in poultry farming. Its application enhances labor efficiency, maintains product safety, and provides an eco-friendly alternative to conventional antiseptics.

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