American Journal Of Applied Science And Technology
(ISSN – 2771-2745)
VOLUME 02 ISSUE 04 Pages: 61-67
SJIF IMPACT FACTOR (2022: 6. 108)
OCLC – 1121105677 METADATA IF – 5.582
Publisher: Oscar Publishing Services

Journal Website: https://theusajournals.com/index.php/ajast

Research Article

NEW WAY SCOPING OF TECHNOLOGY FOR OBTAINING BACTERICIDAL AND WOUNDING OINTMENT

Submission Date: April 18, 2022, Accepted Date: April 25, 2022,
Published Date: April 30, 2022
Crossref doi: https://doi.org/10.37547/ajast/Volume02Issue04-09

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ABSTRACT

In medical practice, for the prevention and treatment of various diseases, anti-inflammatory, antimicrobial and regenerative herbal medicines are widely used. The healing properties of medicinal plants are due to active or pharmacologically active substances - alkaloids, glycosides, saponins, tannins, enzymes, vitamins, hormones, phytoncides, etc. They are the most valuable, although they are contained in plants in minimal quantities. The article presents the results of obtaining a bactericidal, wound-healing ointment based on a dry extract of celandine herb, propolis and sea buckthorn oil.

KEYWORDS

Dry extract, celandine herb, technology, ointment, propolis, sea buckthorn oil.

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INTRODUCTION

Herbal medicinal products, due to their versatile activity, low toxicity and good digestibility, occupy an important place in world practical medicine. At the same time, special attention should be paid to the use of accessible, cultivated and natural sources of raw materials, promising in terms of implementation on the basis of created technologies for new preparations from them.

One of these plants is celandine herb, which has long been used in medical practice and has versatile pharmacological activity: antimicrobial, antiviral, anti-inflammatory, immunomodulatory, choleretic, antispasmodic, antitumor, analgesic, which determines the prospects for further study and development of new drugs based on it [1 -2]. In medicine, celandine is used in the form of various dosage forms: water extracts, tinctures, juice from a fresh plant, ointments, suppositories.

The main active ingredients of celandine are a complex of alkaloids, which is represented by compounds with different chemical structures and pharmacological activity. Quantitatively, benzphenanthridines chelidonine (0.3-1.0%), homohelidonine (0.3-4%), sanguinarine (0.2 0.4%) and chelerythrine (0.1-0.3%) prevail, in smaller quantities contain protopins-protopin (0.2-0.4%) and allokryptopin (0.1%) and protoberberines - berberine (0.1-0.3%), coptisine (0.2%), etc.

At A. Sultanov Chemical-Pharmaceutical Research Institute, a technology for obtaining a dry extract of celandine herb was developed. To obtain a dry extract of celandine herb, celandine herb presented by the Research Institute "Eastern Medicine" was used. Methods have been developed to obtain a dry extract from celandine herb. The obtained dry extract of celandine herb was standardized according to the requirements of the State Pharmacopoeia XI and according to the VFS project for a dry extract of celandine herb.

Dry extracts obtained from medicinal plants are the basis for creating a new drug.

Currently, combined ointments are used to enhance the therapeutic efficacy and expand the action.

Known anti-inflammatory and wound-healing ointment containing oil extract of plant components, as well as honey, mummy, propolis and bear fat [3].

This tool requires long-term use and is not used in the treatment of colpitis, in addition, it contains a scarce raw material - bear fat.

The aim of this work is the development of a bactericidal, wound-healing ointment with a wide spectrum of therapeutic action based on a combination of a dry extract of celandine herb, sea buckthorn oil and propolis.

Sea buckthorn oil, obtained from sea buckthorn fruits by extraction with vegetable oil. It has an analgesic, anti-inflammatory, antibacterial effect, is a multivitamin and antitumor agent, accelerates the granulation of epithelialization of tissues (with frostbite, thermal, chemical and radiation burns, gynecological inflammatory diseases, colpitis, vitamin deficiency, hemorrhoids, pulpitis, periodontal disease). The anti-burn and repair activity of the oil is due to the presence of β-sitosterol and other triterpenoids.

Propolis is very rich in biologically active substances. The amount of phenolic compounds is not less than 25.0%. Propolis has analgesic properties, therefore it is widely used in apitherapeutic treatment in various

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forms, both in pure form and in preparations (tablets, suppositories, ointments, etc.).

Experimental part.

Getting a dry extract of celandine herb. Crushed dry herb of celandine in an amount of 300 g is loaded into a container equipped with a stirrer and ethyl alcohol 70% in an amount of 6000 ml is added. The extraction is carried out at a temperature of 55 ° C for 8 hours.

The resulting extract is separated from the meal by filtration and then concentrated at a temperature of 60 ° C and a pressure of 0.6 atm. up to a volume of 4300 ml. The thickened extract is poured into a baking sheet and dried in a vacuum drying oven at a temperature of 70 ° C to dryness, which is then ground to a particle size of 0.5 mm and sieved. The yield of dry extract is 70 g (23.3%). Dry extract of celandine herb is a dark brown powder with a characteristic odor.

To obtain an ointment, an emulsion base is first prepared. To do this, in a mortar heated in a water bath, melt 60 g of petroleum jelly, 10 g of emulsifier T-2 and add 30 ml of purified water, mix until homogeneous, get an emulsion base - oil / water.

Concentration of propolis tincture. In a porcelain cup, heated, in a water bath, load 40 ml of 5% propolis tincture, which is evaporated at a temperature of 78 ° C to 20 ml, which corresponds to 2 g of pure propolis.

Getting the ointment. To 96 g of the emulsion base, with vigorous stirring, add 2 g of dry extract of celandine herb, 2 g of sea buckthorn oil, 20 ml of concentrated propolis solution and continue stirring for 10 minutes with the addition of the rest of the emulsion base until a creamy mass is formed. The output of the ointment is 100 g. The technological scheme for obtaining the ointment is shown in Fig. 1.

The quality of the ointment was assessed according to the following indicators: appearance, homogeneity, authenticity, pH of the aqueous extract of the ointment, physicochemical stability and the norm of permissible deviations in the mass of the ointment.

The prepared ointment is a homogeneous mass of mustard color with a specific odor.

Determination of the homogeneity of the ointment was carried out according to the method of GF XI. The ointment should be uniform. To do this, take 4 samples of ointment, 0.02-0.03 g each, placing them in 2 samples on a glass slide, covered with a slide on top, pressing tightly until spots with a diameter of 2 cm are formed. When examining the spots with the naked eye (at a distance of 30 cm) 3 out of 4 samples should be free of visible particles. If it is found in a larger number of spots, then the determination is repeated on 8 samples. In this case, the presence of visible particles is allowed no more than in 2 spots. The studied ointment is homogeneous; no visible particles were observed in it.

The determination of the pH of the aqueous solution of the ointment was carried out potentiometrically. To do this, first, 5.0 g of the ointment was mixed with 50 ml of purified water, heated in a boiling water bath for 5 minutes with stirring. Cooled and filtered through cotton wool. The pH value of the ointment is in the range of 6.0 to 7.0.

Physico-colloidal stability of ointments is determined primarily by the combination of its kinetic, aggregative and condensation stability. Ointments during storage should not delaminate, change their consistency, and release solid particles of suspended medicinal substances. It is important that the ointments are stable at temperature fluctuations (as a rule, at temperatures from -40 0 to +40 0C).

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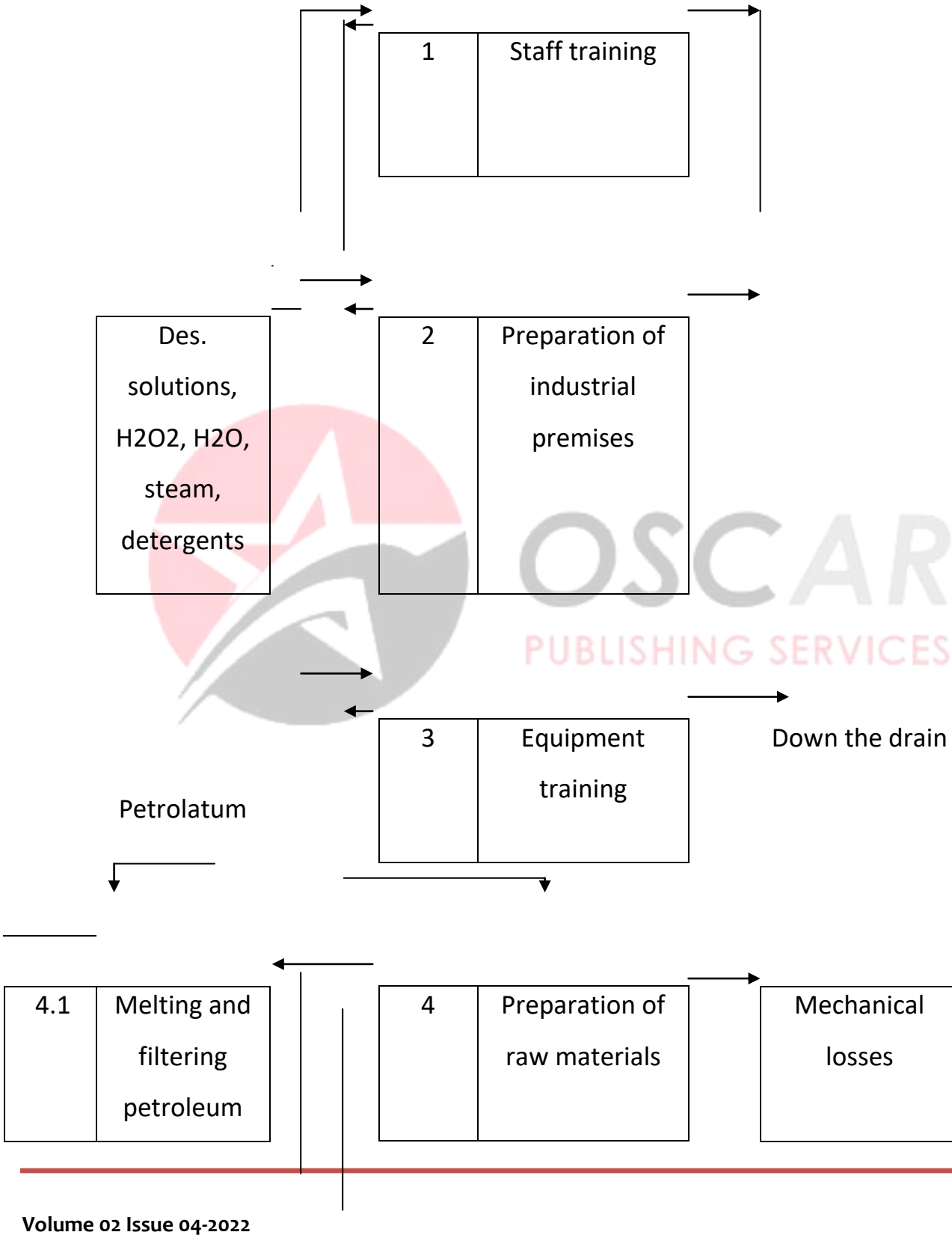

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	jelly				

Celandine substance.

Water

Petrolatum

Emulsifier

Sea buckthorn oil

Solution celandine

4.2	Dissolving celandine				
4.3	Concentration of propolis tincture		1	Getting ointment	Mechanical losses
1.1	Mixing				

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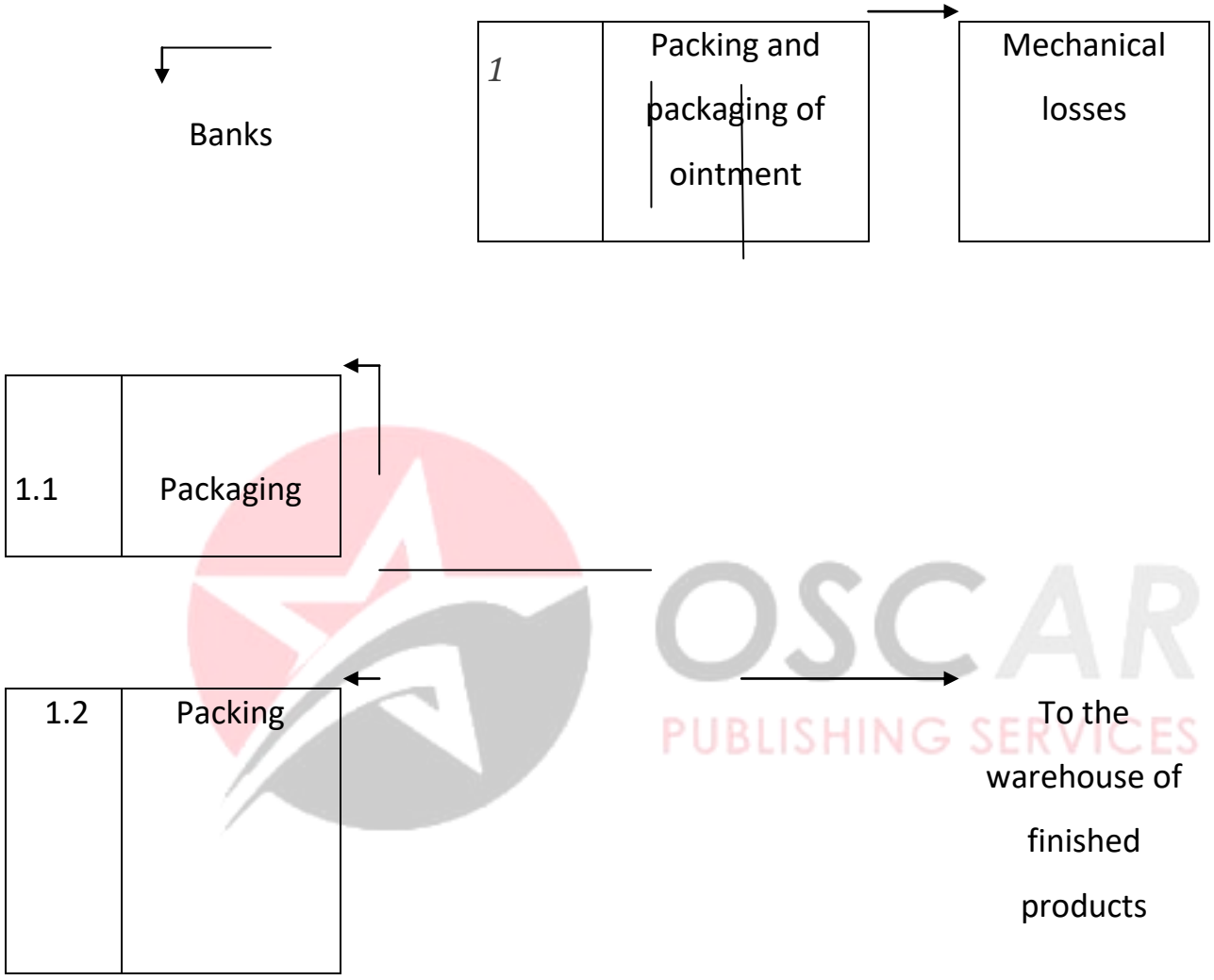

Fig. 1. Technological scheme for obtaining ointment

When obtaining compositions that meet their structural and mechanical characteristics, it is necessary to investigate the ability of the ointment to sediment solid particles, release a liquid phase. For this, the methods of centrifugation and thermostating of the ointment are used with changing temperature fluctuations.

5.0 g of the ointment was placed in a TsUM-1 centrifuge and centrifuged at 1.5 thousand rpm. No

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separation of the liquid phase was observed, therefore, the studied ointment showed its stability under experimental conditions.

To study physicochemical stability by thermostatting, ointment samples weighing 20.0 g were placed in weighing bottles 35 mm in diameter and kept at a temperature of 40 ± 0.2 ° C for 6 hours in a TC-M thermostat until possible destruction. Then, after cooling, it was centrifuged in a TsUM-1 centrifuge for 5 min at a rotor speed of 1.5 thous.

The indicator that determines the stability of the ointment during storage is the volatility of the liquid phase. 1.0 g of ointment (accurately weighed) was placed in a pre-dried and weighed weighing bottle 36 mm in diameter and 62 mm in height and heated in a boiling water bath for 1 h. Then it was placed in an extractor for cooling. Weight loss should be no more than 10%. The norm of permissible deviations for ointments is from 20.0 to 30.0 ± 7%.

The obtained ointment is satisfactory in physical, chemical and technological properties and meets the requirements for ointments.

The resulting ointment was transferred to the Research Institute "Eastern Medicine" for preclinical pharmacological studies.

Preclinical pharmacological study of wound healing ointment was carried out by creating a model of thermal burn of IIIA degree and the creation of an experimental model of colpitis was carried out according to the improved methods of D.S. Sarkisov. and etc.

The research results showed that the proposed ointment has new - removing necrotic tissue, regenerating and restoring the mucous membrane and accelerating the epithelialization processes, which forms a film on the surface of wounds, anesthetic, antiseptic and anti-inflammatory properties, in addition, it is successfully recommended for the treatment of gynecological diseases.

Thus, a technology has been developed for obtaining a bactericidal, wound-healing ointment.

On the basis of the data obtained, the VFS project was developed and the laboratory and technological regulations for the ointment were drawn up.

REFERENCES

1. Turova A.D., Sapozhnikova E.N. / Medicinal plants of the USSR and their application. - M., 1983.
2. Volkina I.V., Gurevich I.I. // Prescription guide for doctors and pharmacists. –L., Medicine, 1976.
3. Patent RU 2246310.