



**Universitatea Tehnică a Moldovei**

**FORMULAREA FILMELOR BIODEGRADABILE  
PRIN VALORIFICAREA PRODUSELOR APICOLE**

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**Chișinău – 2025**

**MINISTERUL EDUCAȚIEI ȘI CERCETĂRII AL REPUBLICII MOLDOVA**

**Universitatea Tehnică a Moldovei**

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„\_\_\_\_\_” \_\_\_\_\_ 2025

**Formularea filmelor biodegradabile prin valorificarea  
produselor apicole**

**Teză de master**

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**Chișinău, 2025**

## REZUMAT

**SOLONARI Natalia:** Teza de master cu tema: „ **Formularea filmelor biodegradabile prin valorificarea produselor apicole**”.

*Structura tezei de master:* este formată din introducere, trei compartimente, concluzii, lista bibliografică care este alcătuită din 90 de surse. Textul de bază conține 58 de pagini, 7 tabele și 9 figuri.

*Cuvinte-cheie:* filme biodegradabile, produse mici, păstură de albine, produse alimentare.

*Scopul lucrării:* estimarea posibilității formulării filmelor biodegradabile prin valorificarea extractului pe bază de pâine-păstură de albine.

*Actualitatea temei* este susținută de prelungirea duratei de valabilitate a alimentelor, creșterea siguranței alimentare și reducerea risipei alimentare. Utilizarea materialelor plastice nebiodegradabile a produs probleme grave de mediu (de exemplu, poluează ecosistemele marine și terestre, provoacă ingerarea faunei sălbatice și leșie substanțe chimice dăunătoare). Astfel, materialele biodegradabile sunt folosite pentru ambalarea alimentelor ca o alternativă durabilă a ambalajelor convenționale din plastic.

Lucrarea are 3 capitole. În *capitolul nr.1* se includ noțiuni generale despre biopolimeri și utilizarea acestora pentru ambalarea alimentelor, se prezintă situația actuală privind cercetările referitoare la materialele biodegradabile folosite pentru ambalaje, subliniind necesitatea existenței alternativelor. A fost prezentată revizuirea literaturii existente cu referire la diverse extracte de polimeri și utilizarea lor în ambalarea alimentelor active și pentru a oferi modul în care extractele afectează proprietățile filmelor biodegradabile și durata de valabilitate a alimentelor produse.

În *capitolul nr.2* sunt descrise materialele și metodele folosite pentru caracterizarea filmelor obținute pe bază de pectină din citrice și extract de pâine-păstură de albine în diferite concentrații.

*La capitolul nr.3* este relatat procesul de pregătire a extractului din pâine/păstură de albine, de obținerea a filmului cât și rezultatele cercetărilor ce se referă la un șir de caracteristici filmelor obținute.

## ABSTRACT

**SOLONARI Natalia:** Master's thesis with the topic: "**Formulation of biodegradable films by utilizing beekeeping products**".

*The structure of the master's thesis:* it consists of an introduction, three sections, conclusions, a bibliography that consists of 90 sources. The main text contains 58 pages, 7 tables and 9 figures.

*Keywords:* biodegradable films, small products, beekeeping, food products.

*The purpose of the work:* to estimate the possibility of formulating biodegradable films by utilizing the extract based on bee bread.

*The topicality of the topic is supported* by the extension of the shelf life of food, increasing food safety and reducing food waste. The use of non-biodegradable plastics has caused serious environmental problems (e.g. polluting marine and terrestrial ecosystems, causing wildlife ingestion and leaching of harmful chemicals). Thus, biodegradable materials are used for food packaging as a sustainable alternative to conventional plastic packaging.

The paper has **3 chapters**.

*Chapter 1* includes general notions about biopolymers and their use for food packaging, presents the current state of research on biodegradable materials used for packaging, emphasizing the need for alternatives. A review of the existing literature was presented with reference to various polymer extracts and their use in active food packaging and to provide how the extracts affect the properties of biodegradable films and the shelf life of the produced foods.

*Chapter 2* describes the materials and methods used to characterize films obtained based on citrus pectin and bee bread extract in different concentrations.

*Chapter no. 3* describes the process of preparing the extract from bee bread/bee pollen, obtaining the film, as well as the results of research that refer to a list of the characteristics of the films obtained.

## CUPRINS:

<b>Introducere</b> .....	7
<b>Capitolul I</b> .....	10
Utilizarea polimerilor pentru ambalarea produselor alimentare.....	10
1.1 Caracteristica polimerilor.....	10
1.1.1 Polimerii sintetici.....	12
1.1.2 Bio-polimerii.....	13
1.1.3 Ambalarea activă.....	16
<b>1.2 Extracte ca agenți anti-oxidanti și anti-microbieni</b> .....	19
1.2.1 Activitatea anti-oxidantă.....	19
1.2.2 Activitatea anti-microbiologică.....	23
<b>1.3 Caracteristica filmelor utilizate pentru acoperirea produselor alimentare</b> .....	26
1.3.1 Efectele extractelor din produse apicole asupra proprietăților filmelor.....	26
1.3.2 Grosimea filmului.....	26
1.3.3 Aspectul vizual.....	28
<b>1.4 Concluzii pentru capitolul I</b> .....	29
<b>Capitolul II</b> .....	33
Materiale și metode.....	33
2.1. Materiale.....	33
2.2. Metode.....	34
2.2.1. Obținerea biofilmului.....	34
2.2.2 Microstructura și rugozitatea biofilmului.....	36
2.2.3 Grosime.....	36
2.2.4 Proprietăți mecanice.....	36
2.2.5 Densitate.....	36
2.2.6 Conținutul de apă, activitatea apei și solubilitatea în apă.....	37
2.2.7 Indicele de umflare.....	37
<b>Capitolul III</b> .....	38
<b>Rezultate și discuții</b> .....	38
3.1 Obținerea uleiului de pâine/ păstură de albine.....	38
3.2 Obținerea biofilmelor.....	41

3.3	Prezentarea optică a filmelor obținute.....	42
3.4	Parametri de bază a filmelor obținute.....	44
3.4.1	Proprietățile mecanice ale filmelor.....	45
3.4.2	Proprietățile de barieră ale filmelor.....	47
3.4.3	Proprietățile optice ale filmelor.....	48
	<b>Concluzii:</b> .....	49
	<b>Bibliografie</b> .....	50

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