

## TEXNIK O`SIMLIK MOYLARINI EPOKSIDLASH ORQALI POLIMERLAR UCHUN MODIFIKATORLAR OLISH

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<sup>1</sup>Denov tadbirkorlik pedagogika unsitituti umumiy kimyo va kimyoviy texnologiyalar kafedrasi o`qituvchisi

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### Abstract

The interaction of sunflower oil and its derivatives with hydrogen peroxide in the presence of formic acid was studied. It has been shown that a mixture of dihydroxy and epoxy derivatives is formed in different proportions depending on the synthesis conditions. In studying the composition of epoxidized vegetable oils, molecular structure, dynamics of intermolecular interactions, chemical reaction mechanism were studied using modern analytical methods (YMR, NMR).

**Key words:** sunflower oil, epoxidation, formic acid, polyvinyl chloride, plasticizer, hydrogen peroxide, tetrabutyl titanate.

**Аннотация:** Изучено взаимодействие подсолнечного масла и его производных с перекисью водорода в присутствии муравьиной кислоты. Показано, что смесь дигидрокси- и эпоксидных производных образуется в разных соотношениях в зависимости от условий синтеза. При изучении состава эпоксидированных растительных масел, молекулярной структуры, динамики межмолекулярных взаимодействий, механизма химических реакций изучались с использованием современных аналитических методов (ЯМР, РМР).

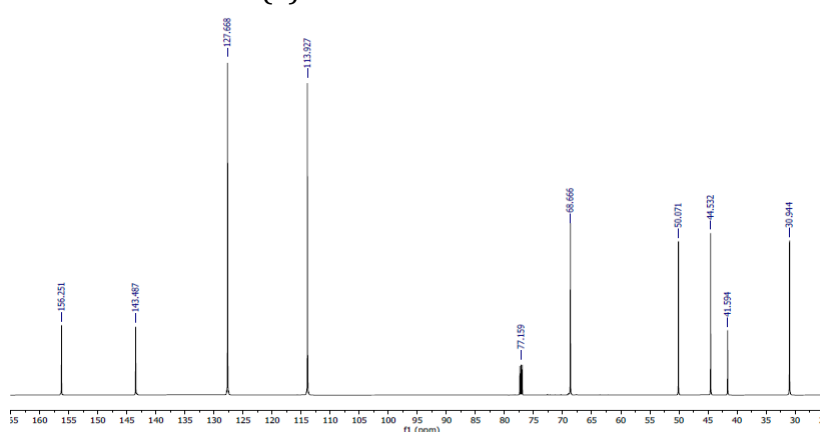
**Ключевые слова:** подсолнечное масло, эпоксидирование, муравьиная кислота, поливинилхлорид, пластификатор, перекись водорода, тетрабутилтитанат.

**Kirish:** Asosan bunday texnologiyalar uglevodorod zahiralari bo'lmagan yoki cheklangan hududlarda, shuningdek, muhim biomassa zahiralarga ega bo'lgan hududlarda (Shimoliy va Lotin Amerikasi, Evropa Ittifoqi, Janubiy -Sharqiy Osiyo va ba'zi Afrika mamlakatlari) ishlab chiqilmoqda. Hozirgi vaqtda epoksidlangan o'simlik moyi hosilalarini moylash materiallari sifatida ishlatish uchun ko'plab sabablar mavjud. Epoksidlar sanoatda katta qiziqish uyg'otadi, chunki ular polimerlar, bog'lovchi moddalar, smolalar va boshqa materiallarni tayyorlash uchun oraliq birikmalardir. O'simlik moylari moylash materiallari sifatida, mineral xomashyoga asoslangan moylardan farqli o'laroq, biologik parchalanadigan va toksik bo'lmagan materialdir [2].

Tajribada kungaboqar moyi GOST 1.2-2009 bo'yicha, GOST 1706-78 bo'yicha chumoli kislota ishlatiladi. Buning uchun kolbaga 50 gr kungaboqar moyi va 7 gr chumoli kislota solindi 200 ayl/min tezligida aralashtirib turgan holda stakan sekin qizdirildi va 30 daqiqadan so'ng vodorod peroksid 30% lisidan 15 gr solindi. Harorat 70°C da 3 soat ushlab turildi. Vodorod peroksid 4 gr solindi. So'ngra reaksiya aralashmaga 3 soatdan so'ng yana aralashtirib turgan holda vodorod peroksid solindi va aralashtirib turildi. Olingan aralashma tindirilib 5% li natriy gidrokarbonat suvli eritmasi bilan yuvilib, ajratish varonkasida ajratildi. Organik faza

[illegible]

(a)



(b)

**3-rasm. Olingan epoksidlangan kungaboqar moyining YaMR (a) va PMR (b) tahlili**

## References:

1. Rhee I. Evolution of environmentally acceptable hydraulic fluids / I. Rhee // NLGI Spokesman. - 1996. - № 60. - P. 28-31.
2. Padmasiri K. Gamage Epoxidation of some vegetable oils and their hydrolysed products with peroxyformic acid - optimised to industrial scale / K. Gamage Padmasiri // J. Natn. Sci. Foundation Sri Lanka. - 2009.Vol. 37, № 4. P. 229-240.