

## OBTAINING ISOPRENE RUBBER FROM PLANT ROOTS BY EXTRACTION METHOD

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### **Abstract**

*in our study, the root portion of the wild-growing taraxacum coke-saghyz rodin plant was obtained and extracted using a xylene solvent, resulting in the release of a yellow elastic substance. Analysis of the IR spectrum of the sample obtained proved that 2-methyl 1,3-butadiene (isoprene rubber) was obtained.*

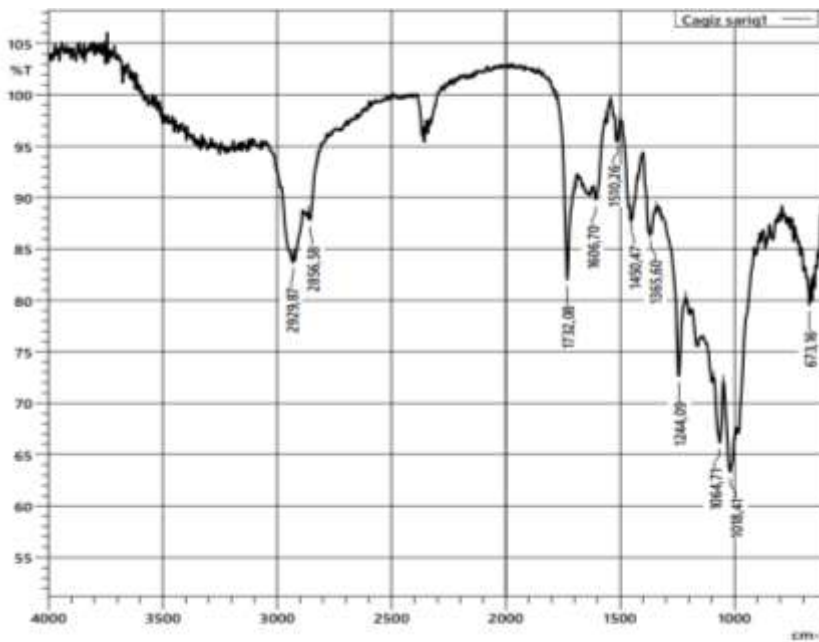
### **Key words**

*Isoprene rubber, soxhlet, solvent, root of self*

**Introduction.** Blue-gum, yellow-gum and kokiot plants grow in natural conditions at an altitude of 1800-2100 meters above sea level, in more or less saline soils, gravel and thickets. These plants grow a lot in Central Asia, in the regions of Kazakhstan, Kyrgyzstan and Uzbekistan. The blue-gum and syrig-gum plants are perennial plants belonging to the family of sedges, and milky juice is present in all parts of the plant [1,2]. For the production of natural rubber on an industrial scale, the cultivation of wild-growing blue-gum, yellow-gum and sedum plants occupies the main place. scientific research is being carried out and is being tested. Natural rubbers obtained from the roots of the blue gum and yellow-gum plants are not inferior in quality to the rubbers obtained from the heave tree, because they are better when used in tires of heavy vehicles [3,4].

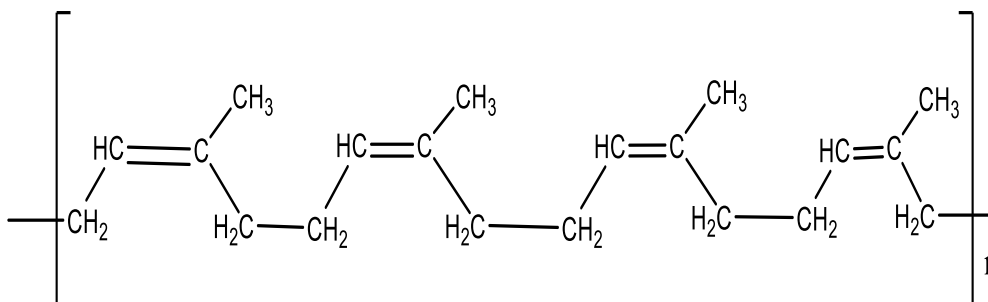
**Experience part.** It is harvested from the roots of a yellow-yellow plant that grows well in the wild on rocky ground. It is thoroughly washed in water and dried at room temperature for two to three weeks. The dried root is ground in a mill until it becomes flour. 100 g of powdered root extract is placed in a soxhlet, 400 ml of xylene is poured over it and extracted for 10-12 hours at a temperature of 70-80 °C. The extracted liquid was evaporated in a vacuum rotary evaporator until a paleyellow oily product was formed, after which the extracted pale yellow oily product was dried in a drying oven at 50 °C.

**Analysis of results.** Asymmetric valence vibration of the methylene (-CH<sub>2</sub>) group contained in the substance was observed at a high frequency in the areas of 2929.87-2856.58 cm<sup>-1</sup>. Asymmetric and symmetric stretching vibration of the methyl group (-CH<sub>3</sub>) along the plane deformation of the =C-H bond was observed in the region of 1365.60 cm<sup>-1</sup>. Out-of-plane deformation of the C-H group -C=C-H 3,4-trans state vibrations were observed in the region of 673.16 cm<sup>-1</sup>. The IR spectrum of our obtained product can be seen in Fig. 1.



**Fig.1. IR spectrum of isoprene rubber obtained from the root of the blue-gum plant**

From the IR-ray analysis, it can be seen that our obtained product can be called natural rubber, because cis- and trans-performance can be seen. The general state of polymerization of isoprene rubber can be seen in Fig.2.



**Fig.2. Structural structure of polyisoprene rubber**

**Conclusions.** It can be seen from the results of the analysis of the IR spectrum of the substance obtained from the root of the blue-gum plant that it is proved that isoprene exhibits the properties of rubber.

### REFERENCES:

1. Kh.Eshankulov, H.Turaev, I.Umbarov, A.Джалилов Органический полимерный синтез металлов на основе акрилонитрила. Universum: химическая технология: электрон. научн. журн. 2021. 7(88). <https://7universum.com/ru/tech/archive/item/12108>
2. Kh.Eshankulov, H.Turaev, I.Umbarov, H.Beknazarov Модификация битума серой и натуральным каучуком и его ик-спектральный анализ. Universum: технические науки : электрон. научн. журн. 2022. 12(105). DOI - 10.32743/UniTech.2022.105.12.14658
3. Eshankulov X.N., Turaev Kh.Kh., Umbarov I.A., Beknazarov Kh.S. Modification of bitumen with sulfur and natural rubber and study of its chemical and rheological properties. Eur. Chem. Bull. 2023 doi: 10.48047/ecb/2023.12.si8.340
4. Filippov DI. [Kok-saghyz culture]. Kauchuk i Kauchukonosy. 1953. 173-19. (In Russ.)