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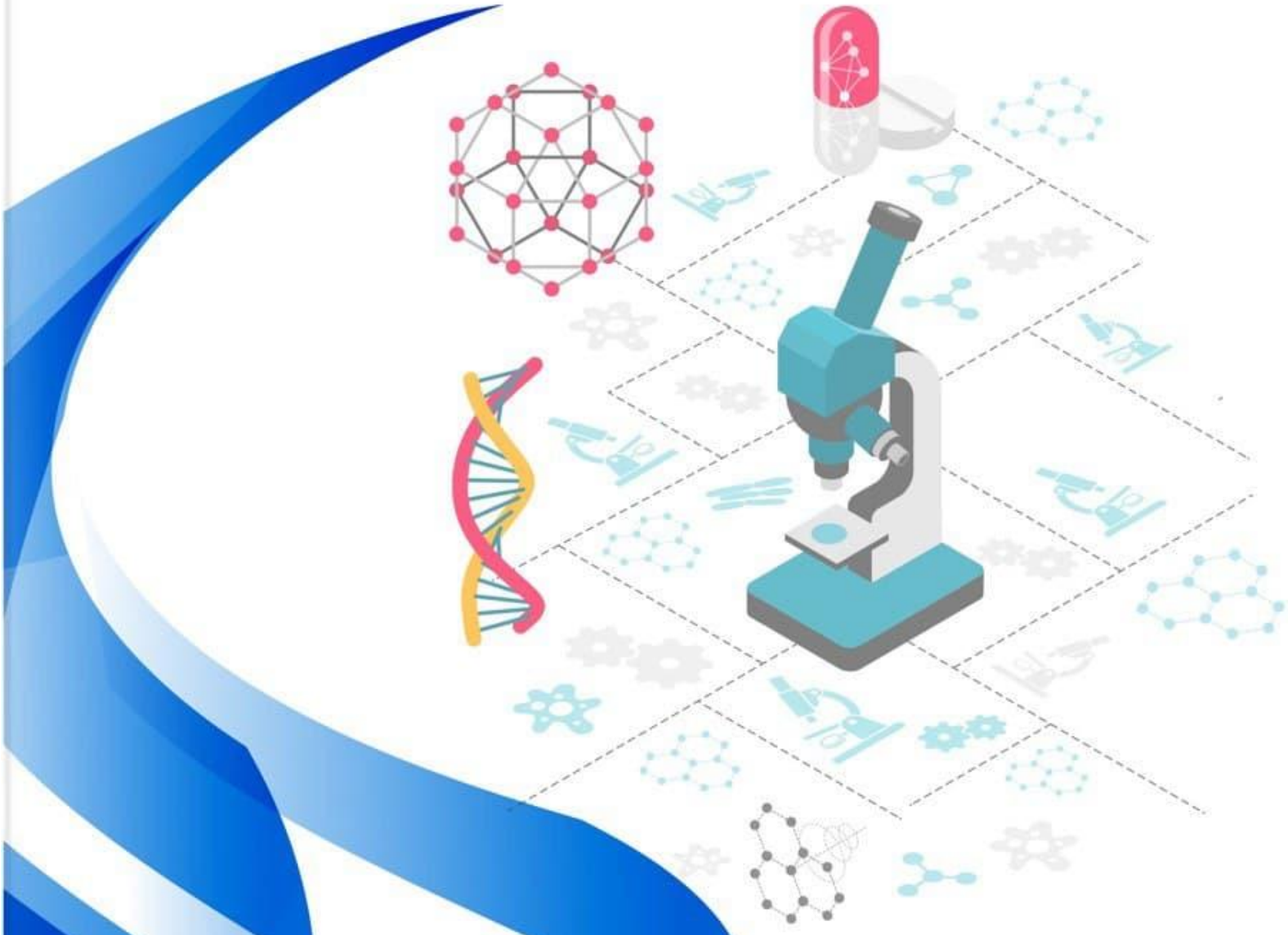

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researchbib 8
Volume 13 Issue 2
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Asian journal of Pharmaceutical and biological research 2231-2218
http://www.ajpbr.org/
researchbib 8
Volume 13 Issue 2
MAY-AUG. 2024

"SILYBUM MARIANUM L."DETERMINATION OF THE AMOUNT OF FLAVOLIGNANS IN PLANT SEEDS AND DRY EXTRACTS OBTAINED FROM THEM.

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Abstract: In this article gSilybum marianum L. grown in Tashkent region is recommended as a hepatoprotective agent. experimental results of determining the amount of flavolignans in medicinal plant seeds and dry extracts obtained by the HPLC method were presented. Phytopreparation prepared on the basis of this dry extract is recommended as a hepatoprotective agent.

Keywords: Silybum marianum L., dry extract, raw material, HPLC, standard samples, silymarin, silybin, flavolignan.

INTRODUCTION.

In recent times, the need for medicines obtained from medicinal plants is increasing all over the world. In this regard, important researches are being conducted on the creation of new, effective, mild-acting drugs with almost no side effects and their application to medicine based on medicinal plants. The liver is one of the most important organs in the human body, and its main functions are metabolism, detoxification and synthesis.

There are many medicinal plants that are used as hepatoprotectors, or medicines are prepared based on their biologically active substances, including: thistle (Silyubum marianum), fennel (Anisum vulgare or pimpinella anisum L.), corn cob (Styli stigmatis real maydis) , curcuma (Fchillea millefolium) and others.

Many hepatoprotectors have been created on the basis of medicinal plants and their biologically active substances, many of them are included in medical practice and are being used effectively.

Materials and methods of research. Medicines prepared on the basis of dry extracts of local raw materials for the treatment of liver diseases are fundamentally different from synthetic drugs and are important in the treatment of diseases.

Considering the above, it was aimed to determine the amount of flavolignans, which are considered bioactive substances, in Silybum marianum L. plant seeds and fresh dry extracts obtained from it.

The HPLC method was used to analyze the seeds of the medicinal plant Silybum marianum L. grown in Tashkent region as the object of research and the dry extracts obtained from it in two different ways.

Biologically active compounds in plant seeds and dry extracts: flavolignans were determined.

Experimental part: Soxhlet and ultrasonic bath methods were used to obtain dry extracts.

In the first method, 50 g of crushed raw materials placed in the capsule of the Soxhlet apparatus. Pour 500 ml of 80% ethyl alcohol into a 1000 ml flask. A soxhlet apparatus and a reflux condenser were connected. The equipment was placed in a water bath to be heated to an average temperature of 90-1000□C. After the extraction process was repeated 8-9 times, the process was stopped.

In the second method, 50g of crushed raw materials. It was placed in a 1000 ml flask and 500 ml of 80% ethyl alcohol was poured over it. Theninto the ultrasonic bath at the temperature of 30□C. Extracted for 30 minutes.

Obtained liquid extractscooled to room temperature and filtered. Then liquid extracts were concentrated to 1/5 in a rotary evaporator. The obtained dark the extractin a vacuum dryer for 18 hours at a temperature of 60□C dried. Odry extract of lingoncharacteristic brown hygroscopic powder with a sharp smell. The amount of flavolignans in plant seeds and dry extracts obtained from them using two different methods was determined by HPLC method.

Analysis It was carried out on an Agilent 1200 HPLC. The equipment is carried out on a C18 column with a UF detector (250x4.6 mm, 5 µm).

The mobile phase is 0.05M orthophosphoric acid (A) and acetonitrile (B) (60:40 volume ratio). Identify accordinglyflavolignanis carried out at a characteristic wavelength of 288 nm. The eluent flow rate was 0.6 ml/min, and the sample volume tested was 10 µl. Chromatography temperature – (400C). The duration of the analysis is 30 minutes. In the examineL_{max}flavolignansto determine their ISN (standard) solutions are simultaneously chromatographed.

Preparation of the test solution. For this purpose, 100 mg of the sample is accurately weighed into a 100 ml flask, 60 ml of ethanol is added, mixed, and the volume of the solution with ethanol is brought up to the mark.

Asian journal of Pharmaceutical and biological research 2231-2218
http://www.ajpbr.org/
researchbib 8
Volume 13 Issue 2
MAY-AUG. 2024

In dry extract flavolignan (silibinin A, silibinin V, silicristin) amount is calculated according to the following formula:

$$X = \frac{S_{\text{исп}} \times a_{\text{стд}} \times V_{\text{исп}} \times P}{S_{\text{стд}} \times V_{\text{стд}} \times a_{\text{исп}}} = \frac{S_{\text{исп}} \times a_{\text{стд}} \times P \times V_{\text{исп}}}{S_{\text{стд}} \times a_{\text{исп}}. \times V_{\text{стд}}}$$

Here:

Std–silymarin(silibinin A, silibinin V, silicristin) peak area in the chromatogram of standard solutions, mAU;

Sisl – in the chromatogram of the test sampleflavolignanpeak area of (silibinin A, silibinin V, silicristin), mAU;

assistant –flavolignan weighted part of the standard, g;

P- standard model flavolignan amount, %.

Flavolignan standard **preparation of sample solution.** 0.050 gflavolignan Dissolve with the mobile phase in a 50 ml flask and make up to the mark with this solvent.

Mobile phase*preparation of the solution.* Dissolve 6.8 g of potassium hydrogen phosphate in a 1000 ml flask with deionized water, add orthophosphoric acid to rN=3.0 and make up to the mark with deionized water.

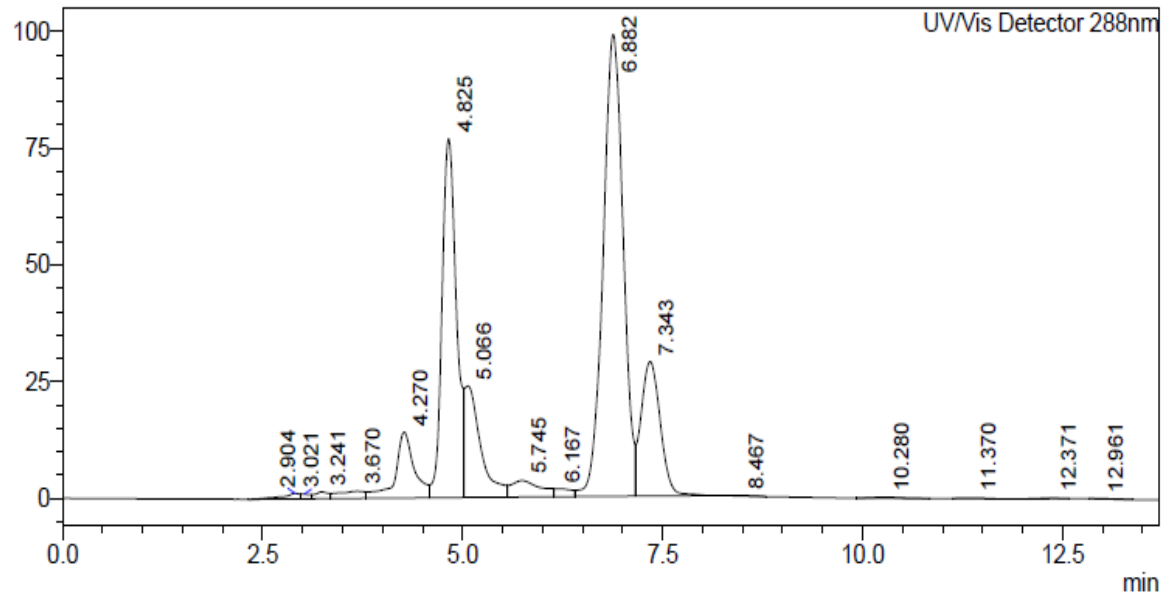

Figure 1.**Silymarinstandard chromatogram.**

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http://www.ajpbr.org/
researchbib 8
Volume 13 Issue 2
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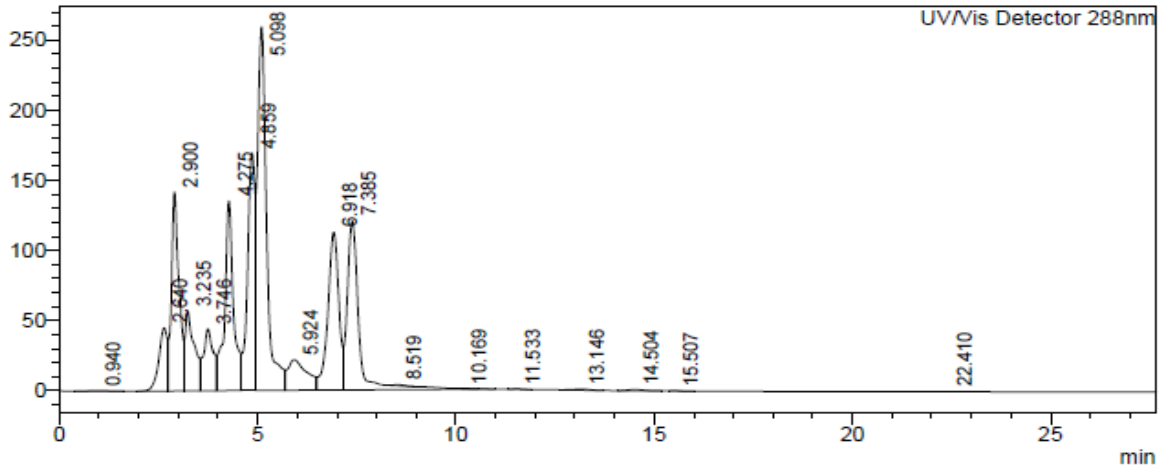

Picture 2. Plant seed contained flavolignan (silibinin A, silibinin B, silicristin) chromatogram.

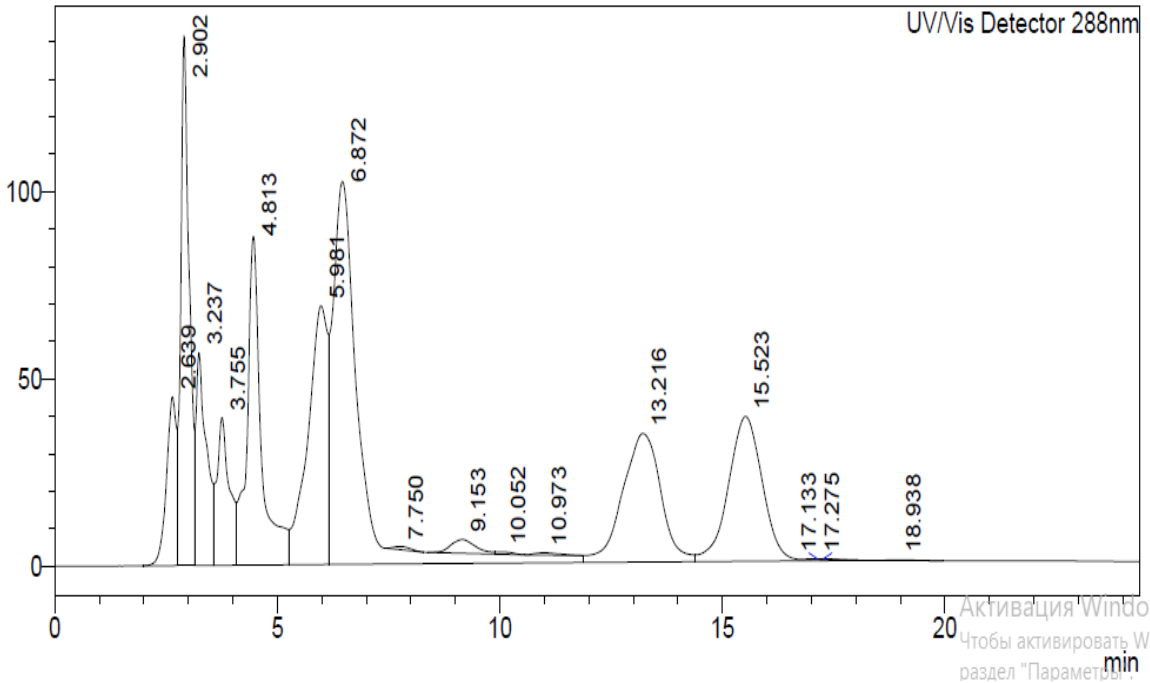

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Figure 3. The content of the extract obtained by the Soxhlet method **flavolignan (silibinin A, silibinin V,silicristine) chromatogram.**

Asian journal of Pharmaceutical and biological research 2231-2218
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researchbib 8
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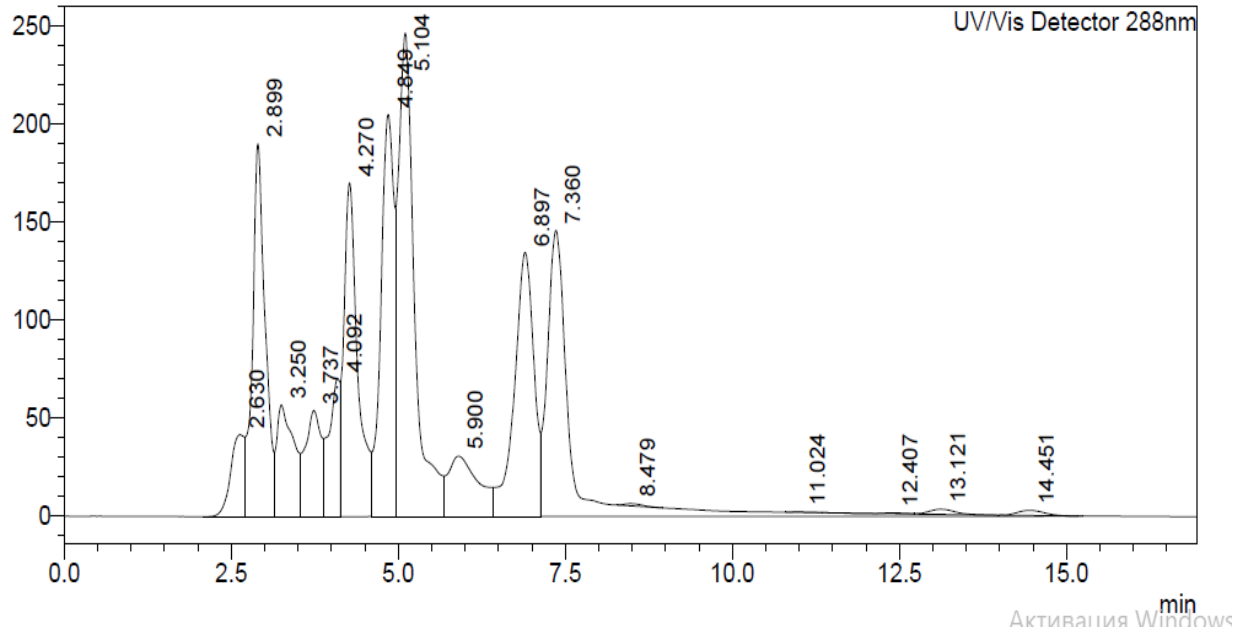

Figure 4. Ultrasonic bathin the extract obtained by the method flavolignan (silibinin A, silibinin V,silicristine) chromatogram.

The amount of flavolignans (silibinin A, silibinin V, silicristin) in the extract obtained by the Soxhlet method from the crushed plant seeds was determined on HPLC-DAD equipment. Contains crushed plant seeds flavolignan(silibinin A and silibinin V, silicristin) content of flavolignan - 3.5%, in the extract obtained by the Soxhlet method flavolignan (silibinin A and silibinin V, silicristin) content of flavolignan - 27.9%, ultrasonic bath in the extract obtained by the method flavolignan (silibinin A and silibinin V, silicristin) flavolignan content was found to be 29.9%.

CONCLUSION

The amount of flavolignans in the dry extract obtained from the seeds of Silybum marianum L. was determined by the HPLC method. The resulting dry extract is used to create bioactive supplements (BAA).

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