



STORAGE CONDITIONS AND SHELF LIFE DETERMINATION OF THE HEPATOPROTECTIVE HERBAL TEA "HEPASILIMARIN"

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Relevance: Herbal teas derived from medicinal plants have been traditionally and extensively utilized for centuries in folk medicine as well as in modern pharmaceutical practice. They are valued not only as supportive remedies but also as therapeutic agents with restorative and preventive benefits. These properties are especially significant in maintaining and enhancing liver health, as the liver is one of the body's most vital organs responsible for detoxification and metabolic balance. Within this group, the herbal tea "HEPASILIMARIN," formulated from locally sourced medicinal plant raw materials, has been scientifically investigated and confirmed to possess hepatoprotective activity in pharmacological studies. Despite these beneficial effects, it is important to recognize that the overall efficacy and safety of such herbal products are highly dependent on proper storage conditions and strict adherence to the specified shelf life. Any deviation from these conditions can result in the loss of bioactive compounds or reduced therapeutic effectiveness. Consequently, establishing the most suitable packaging material and accurately determining the shelf life that guarantees the preservation of the tea's qualitative characteristics is not only a scientific necessity but also a critical practical task for ensuring product stability, patient safety, and clinical usefulness.

The aim of the study. To study the storage conditions of "HEPASILIMARIN" herbal tea in various packaging materials and to determine the optimal storage duration and conditions based on their impact on quality parameters.

Materials and Methods. The object of study was the herbal tea "HEPASILIMARIN" with the following composition: milk thistle seeds (*Silybum marianum*) – 2.0 g; peppermint leaves (*Mentha piperita*) – 1.0 g; corn silk (*Zea mays*) – 2.0 g. The product was packaged in three types of containers permitted for medical use: paper filter-bag + cardboard box; nylon filter-bag + cardboard box; aluminum foil package (multi-use) + cardboard box. During storage, the following indicators were evaluated: appearance, color, moisture content, particle size, weight per bag, amount of water-soluble extractive substances, total flavonoids (as rutin), and microbiological purity. Storage experiments were carried out under natural conditions — at room temperature (20 ± 2 °C, relative humidity 50–65%) for 30 months, with analyses repeated every 6 months.

Results and Discussion. Throughout the experiment, the content of bioactive substances and the main quality indicators were preserved across all packaging types. However, samples stored in aluminum foil packages demonstrated the highest stability. Nylon packages also maintained favorable results, while some quality parameters were relatively lower in teas stored in paper filter-bags. The effectiveness of packaging materials ranked as follows: aluminum foil > nylon > paper filter. Based on the obtained results, it was established that the quality indicators of "HEPASILIMARIN" herbal tea remain within acceptable standards for up to 2 years. Therefore, the use of aluminum foil or nylon filter-bags is recommended in practice.

Conclusion. The optimal shelf life of "HEPASILIMARIN" herbal tea has been determined as **2 years**. Packaging material plays a crucial role in maintaining product quality, with aluminum foil



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providing the highest degree of preservation. Continuous monitoring of quality indicators is essential to ensure the therapeutic efficacy and safety of the herbal tea.