

HERBAL PREPARATIONS AND THEIR INFLUENCE ON BIOCHEMICAL
PARAMETERS IN CHRONIC HEPATITIS: A LITERATURE REVIEW

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Abstract. This article presents a literature review of studies investigating the effects of medicinal plant extracts on liver function in an experimental model of chronic hepatitis. Specifically, it examines the impact of extracts rich in flavonoids, phenolic compounds, and antioxidants on liver enzymes, oxidative stress biomarkers, and plasma protein levels. Available studies demonstrate the significant hepatoprotective potential of medicinal plant extracts.

Keywords: hepatitis, liver enzymes, antioxidant, medicinal plant, extract, biochemical indicators.

Introduction. Chronic hepatitis is a prolonged inflammatory condition of the liver parenchyma, often accompanied by impaired liver function, metabolic imbalance, disrupted protein synthesis, and detoxification processes. In recent years, experimental models have been widely used to explore the pathogenesis of chronic hepatitis and assess the role of natural medicinal agents in its prevention and treatment. Among these agents, the hepatoprotective and antioxidant properties of plant extracts have attracted considerable scientific attention [4].

Experimental modeling of hepatitis is a critical method for evaluating the efficacy of novel therapeutic agents. The carbon tetrachloride (CCl₄)-induced model of chronic hepatitis is particularly widespread. In recent studies, plant-derived extracts, especially those containing flavonoids, polyphenols, and glycosides, have shown efficacy in protecting the liver from injury [3]. Widely studied medicinal plants include *Silybum marianum* (silymarin), *Glycyrrhiza glabra*, *Curcuma longa*, *Phyllanthus niruri*, and members of the *Brassica* genus. These extracts have been tested in experimental models induced by CCl₄, acetaminophen, ethanol, and other hepatotoxic agents [2].

Biochemical Markers and Their Evaluation

In the context of liver damage, key biochemical markers include ALT, AST, and ALP enzyme levels, plasma albumin concentration, and malondialdehyde (MDA) levels in liver

homogenates. These indicators are used to assess the extent of hepatocellular damage, oxidative stress, and the effectiveness of recovery mechanisms [5].

The following parameters are typically evaluated in chronic hepatitis models:

- **ALT (Alanine aminotransferase):**
 - Increases in plasma in response to damage to liver parenchymal cells.
 - Elevated levels are observed in chronic hepatitis.
- **AST (Aspartate aminotransferase):**
 - Found in the heart, muscle, and liver tissues.
 - Used in conjunction with ALT; the AST/ALT ratio helps determine the type of pathology.
- **ALP (Alkaline phosphatase):**
 - Elevated in cases of bile duct obstruction or cholestasis.
 - Indicates impaired excretory function of the liver.
- **Albumin:**
 - A major plasma protein synthesized by the liver.
 - Its decrease in chronic hepatitis reflects impaired synthetic function [6].
- **MDA (Malondialdehyde):**
 - A final product of lipid peroxidation.
 - Serves as an indicator of oxidative stress and membrane damage in hepatocytes.

Conclusion. Analysis of the literature suggests that medicinal plant extracts may serve as effective agents in protecting the liver in chronic hepatitis models. These extracts not only reduce the activity of liver enzymes but also contribute to the restoration of cell membrane integrity, reduction of oxidative stress, and normalization of plasma protein synthesis [1]. Further clinical research in this area is considered highly relevant.

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