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"Young people and multidisciplinary  
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Effect of Sea buckthorn used in phytotherapy of hyperlipidemic rats treated with Atorvastatin - Histological aspects

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Abstract:

Hyperlipidemia has been classified as one of the most important risk factor related to the majority and stringency of coronary heart diseases. The pathophysiology of hyperlipidemia can be classified into primary and secondary hyperlipidemia. Medications are used to decrease oxidative stress act by controlling cellular injury associated with hyperlipidemia, but with some side effects like hepatotoxicity.

Phytotherapy can improve the valuable health results in the controlling of hyperlipidemia and can enhance the role of the metabolic organs, like the heart, liver, and kidney. Since Sea buckthorn (SBT) extract is known as a good source of polyphenol, we supposed that SBT extract might have a protective effect and improved metabolic function in hyperlipidemic rats treated with atorvastatin.

• Introduction

- The study aimed to investigate the antioxidant potential effect and the response to free radicals in case of a hyperlipidaemia status in rats treated with atorvastatin.
- The oxidative stress was established and the activity of SBT, being described beneficent effects reflected in the cellular architecture of the rat metabolic organ (liver).

• Material and method

- Twenty five hyperlipidemic Wistar male rats were divided into five groups, and orally treated as follows:
- G1 atorvastatin (ATS) (20 mg/kg·b.w.); G2 ATS + SBT (20 mg/kg·bw+ 100 mg/kg·bw);
- G3 SBT extract (100 mg/kg·bw);
- G4-High fat diet (HFD) group and
- G5 Control received normal diet only.
- After two months, rats were sacrificed and the liver samples were gathered in order to assess organs cytoarchitecture.

• Conclusion

Our findings set that the therapies with sea buckthorn (*Hyppophe rhamnoides*) fruits associated with atorvastatin provided for a beneficent influence, histologically illustrated by the regeneration of liver as metabolic organ.

• Results and discussions

Major changes in histopathological appearance of the liver

Group	Histological aspects	Image
G1	• Diffuse steatosis • different sizes of hepatocytes • mild of cellular inflammation • absence of lipid droplets	
G2	At 60 days, clear signs of recovery were observed	
G3	• low steatosis • ballooning hepatocytes • absence of inflammatory cell infiltrate	
G4	• steatosis in different stages • presence of lipid droplets • small blisters	
G5	• Normal hepatocytes	

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