



WORLD CONGRESS OF GASTROENTEROLOGY AND DIGESTIVE DISEASES



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Targeted Modulation of TNF- α and Adiponectin via Ginger and Sea Buckthorn Microemulsion: A Novel Approach for Nonalcoholic Fatty Liver Disease

Abstract:

Introduction: Nonalcoholic fatty liver disease (NAFLD) is a rapidly progressing liver disorder, primarily driven by excessive lipid accumulation and inflammation. Multiple factors contribute to its pathogenesis, and several therapeutic agents are under clinical evaluation. Ginger is known for its protective effects on the liver, heart, and lungs, while sea buckthorn fruit oil is utilized in the treatment of obesity and cholesterol management. This study investigates the efficacy of a microemulsion combining ginger and sea buckthorn fruit oil (MGS) in the management of NAFLD. **Methodology:** Adult male Wistar rats were divided into two groups based on diet: a standard chow diet group and a high fat-fructose (HFF) diet group, the latter receiving the diet for six weeks. Rats in the HFF group were treated with a standardized MGS formulation. The study adhered to CPCSEA guidelines and was approved by the Institutional Animal Ethics Committee (IAEC). **Results:** Rats treated with MGS showed significantly reduced serum SGOT and SGPT levels compared to the disease control (DC) group, indicating liver tissue recovery. Additionally, MGS significantly lowered cholesterol, triglycerides, and LDL levels in comparison to DC rats. MGS also markedly suppressed TNF-alpha signaling, a key driver of hepatic damage. Furthermore, adiponectin (ADP), which plays a role in lipid and glucose metabolism and is associated with weight regulation, was significantly reduced in MGS-treated rats. **Conclusion:** These findings suggest that MGS could be a potential therapeutic option for the early management of NAFLD when combined with dietary and lifestyle modifications.

Keywords: Nonalcoholic fatty liver disease (NAFLD), Ginger, Sea buckthorn fruit oil, Microemulsion, TNF-alpha signalling, Adiponectin

Biography: Dr. Nilay Solanki is an Associate Professor at Ramanbhai Patel College of Pharmacy, CHARUSAT Campus, India. He had completed his Ph.D. in 2016 from CHARUSAT University. Dr. Nilay has over 16 years of academic, research, administrative and leadership experience in the field of Pharmaceutical sciences & Pharmacology. His expertise is in the area of clinical research and preclinical animal model development of various disease conditions, with a special emphasis on diabetes, cancer, NAFLD, obesity, neurodegeneration, etc. He also works in the clinical research area such as pharmacoepidemiology, pharmacogenomics, and health-related quality of life assessment for various disease conditions. Dr. Nilay has several collaborations with multispecialty hospitals in Gujarat, where major clinical studies were conducted. Dr. Nilay has published over 50 research, review papers & book chapters in Scopus and Web of Science-listed high-impact factor journals with Q1, Q2, Q3 quartiles. He has also completed multiple consultancy projects. He had received various awards at national conferences and CHARUSAT research paper awards for five consecutive years. He had also provided his services as a resource person at national and international conferences in India. He is also associated as a reviewer and editor in national and international journals.