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SPACE LIFE SCIENCES SYMPOSIUM (A1)  
Biology in Space (7)Author: Prof.Dr. Mahmoud Saleh  
Texas Southern University, United States, saleh.ma@tsu.eduTRIGLYCERIDES AND PHOSPHOLIPIDS AS BIOMARKER FOR OXIDATIVE DAMAGE  
ASSOCIATED TO EXPOSURE TO RADIATION AND MICROGRAVITY**Abstract**

Unsaturated triglycerides and phospholipids are a target biomolecule for oxidative damage due to exposure to free radical oxygen or nitrogen species (ROS/RNS) that may be associated with exposure of living organism to environmental stress such as microgravity or radiation. Therefore the ability to analyze intact triglyceride or phospholipid to identify the site of damage will provide a better biomarker for oxidative damage to lipids particularly those lipids associated with cell membrane and gate channels. Traditionally lipids oxidation damage are analyzed after transesterification of triglycerides to obtain methyl esters of their fatty acids (using acid or base hydrolysis) and then analyze them using gas chromatography mass spectrometry (usually carried out at high temperature) which may cause chemical degradation or structural modification of the oxidative damage products. In this project standard lipids were exposed in vitro to oxidation by ROS and RON and the oxidation products were analyzed by LCMSQTOF using mild ionization techniques such as atmospheric pressure chemical ionization (APCI) and atmospheric pressure photo ionization (APPI). The results showed that LCMSQTOF is a superior technique for monitoring oxidative damage qualitatively and quantitatively.