

## STUDY OF MOLECULAR BAND PRESENT IN THE LASER-INDUCED PLASMA OF CHOLESTEROL GALLSTONE

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Gallbladder cancer is associated with high death rates due to its no effective treatment. Gallstones are the most common risk factor for gallbladder cancer. Continuous efforts have been made to understand the morphology, development, and compositions of gallstones, but to the best of our knowledge, the mechanism of their formation is not properly known. In the present work, the spectral lines of elements and molecular bands in cholesterol gallstone have been monitored using laser-induced breakdown spectroscopy (LIBS). The LIBS spectra of cholesterol gallstone exhibit spectral lines of inorganic (Ca, Mg, Na, Al, K) and organic (C, H, N, O) elements as well as electronic spectra of CN Violet band, NH band, and C<sub>2</sub> Swan band. We have also recorded the Fourier transform infrared (FTIR) spectra of cholesterol gallstone, which show vibrational bands of CN, NH, and C<sub>2</sub> molecules. These studies are likely to reveal the mechanism of gallstone formation.