

Tea Leaves to Titration: Simplifying Caffeine Extraction and Analysis

Sakshi Sunil Padge, Karbari Sana Abdul Sami, Khan Shoyeab Mutalib

Department of Chemistry

Anjuman Islam Janjira Degree College of Science Murud, Raigad

Abstract: *This research paper focuses on the extraction and analysis of caffeine from tea leaves using a simple titration method. The primary objective was to evaluate the caffeine content in various tea types, while employing a straightforward and accessible analytical technique. The caffeine was extracted from the tea leaves through a solvent extraction process, followed by quantification through titration, which allowed for the precise determination of caffeine concentrations. The study assessed the efficiency of the extraction process and analyzed the impact of factors caffeine yield. Results showed variations in caffeine content across different samples, highlighting the influence of specific extraction conditions. This research not only demonstrates the effectiveness of simple titration as an analytical method for caffeine determination but also provides insights into the caffeine composition of common teas. The findings are valuable for both consumers and manufacturers interested in understanding caffeine levels in tea products.*

Keywords: Caffeine extraction, tea leaves, Soxhlet, ultrasonic extraction, analytical methods, sustainability, tea types, nutritional analysis

