



A simple colorimetric method for the determination of total capsaicin in chili collected in Nakhon Ratchasima Province

Siriwan Teepoo*, Chehasan Cheubong, Supattra Muhammad-aree, Nattikran kheiwkham

*Department of Chemistry, Faculty of Science and Technology,
Rajamangala University of Technology Thanyaburi, Pathumthani 12110, Thailand*

*e-mail: siriwan@mail.rmutt.ac.th

A colorimetric method was developed for the determination of total capsaicin in chili. The phenolic group in capsaicin reduced the heteropoly phosphomolybdic acid to heteropoly molybdenum blue in alkaline condition. The resulting compound yielded a blue solution, which showed the maximum absorption at 650 nm. The absorbance at 650 nm was directly proportional to the concentration of total capsaicin. The effect of phosphomolybdic acid concentration, sodium hydroxide concentration and reaction time were optimized. Under the optimum conditions, the linear calibration curve was obtained from 5 to 60 ppm with a detection limit of 1.2 ppm. Validation data showed good repeatability and reproducibility with relative standard deviations of 2 % and 4 %, respectively. The recoveries were in the range of 80–98 %. The chili samples were collected in Nakhon Ratchasima Province. All samples were extracted with ethanol at 40 °C for 40 min. The total capsaicin was found to be in the range of 119-316 ppm depending on the type of chili. The proposed method was successfully applied to the determination of total capsaicin in real samples due to its sensitivity, simplicity, reasonable time and cost.

Keywords Capsaicin; Colorimetric method; Chili; Nakhon Ratchasima Province