Andrew J. Aubin, Cecilia B. Mazza, Donald A. Trinite
Waters Corporation, Milford, MA, USA

INTRODUCTION
Vegetable oils such as soybean, olive, corn, and canola have been employed for a variety of purposes, including as edible oils, as food additives, in the cosmetic industry, and for disease prevention. Therefore, the source as well as the nature of the oil is relevant as it is known that harmful oil impurities can have a significant impact on one’s health. This work describes the evaluation of several edible vegetable oils employing state of the art technology, including a Waters® Alliance® HPLC Technology.

METHODS

ANALYSIS OF VEGETABLE OILS BY HIGH PERFORMANCE LIQUID CHROMATOGRAPHY USING EVAPORATIVE LIGHT SCATTERING DETECTION AND NORMAL PHASE ELUENTS

EXPERIMENTAL
A Waters® Alliance® 2015 system configured with a Waters® 2424 Evaporative Light Scattering Detector (ELSD) and a Waters® 2487 Alliance® Binary Gradient Module was employed. Table 1 describes the HPLC and gas chromatographic methods, and Table 2 describes the sample and chromatographic conditions. The actual settings are dependent on the composition and separation conditions. Gradient separations typically can give the best performance. The second challenge involves detection. Modern HPLC columns and careful selection of solvents and mobile phases can allow the components of vegetable oils to be well separated. The third challenge involves quantitation. An accurate area count is important when using this kind of chromatographic approach as it allows users of these products to determine the quality and purity of a vegetable oil as a single run. The results show that HPLC analysis coupled with ELS detection can provide sufficient information to understand the nature and purity of a vegetable oil as a single run.

RESULTS AND CONCLUSIONS
Differences in the chromatographic patterns of each of the oils analyzed were noted (Figure 7). The combination of the drift tube and nebulizer pressure and the drift tube temperature set too high for an identical sample at two different drift tube temperatures along with the nebulizing gas pressure. The actual settings are dependant on the composition and separation conditions. Gradient separations typically can give the best performance. Modern HPLC columns and careful selection of solvents and mobile phases can allow the components of vegetable oils to be well separated. The second challenge involves detection. Modern HPLC columns and careful selection of solvents and mobile phases can allow the components of vegetable oils to be well separated. The third challenge involves quantitation. An accurate area count is important when using this kind of chromatographic approach as it allows users of these products to determine the quality and purity of a vegetable oil as a single run. The results show that HPLC analysis coupled with ELS detection can provide sufficient information to understand the nature and purity of a vegetable oil as a single run.

REFERENCES
(2000) 93-104

TO DOWNLOAD A COPY OF THIS POSTER, VISIT WWW.WATERS.COM/POSTERS