

## Simultaneous Detection by MS, PDA and Fluorescence Detectors with LCMS-2010A System

To improve the reliability of qualification in LC-MS analysis, light absorption (UV) detector and photodiode array (PDA) detectors, which are often used in HPLC analysis, are adopted in addition to mass spectrometers.

Using the high-performance liquid chromatograph mass spectrometer LCMS-2010A and its control/processing software LCMSsolution, three phenolic antioxidants BHA (Butylated hydroxyanisole), NDGA (Nordihydroguaiaretic acid) and TBHQ (tert-butyl hydroquinone) were analyzed. Detection was made using fluorescent, PDA and MS

detectors. The flow line was branched using a splitter after the column for a flow ratio of 8:2 for fluorescent and PDA/MS detectors.

Fig. 1 shows the chromatograms obtained by each detector. Fig. 2 shows the mass spectra for TBHQ, NDGA and BHA. Quasi-molecular ions ( $[M-H]^-$ ) were detected for all components. Using LCMSsolution allows simultaneous acquisition of data from fluorescence, PDA and MS detectors, improving the qualification reliability.

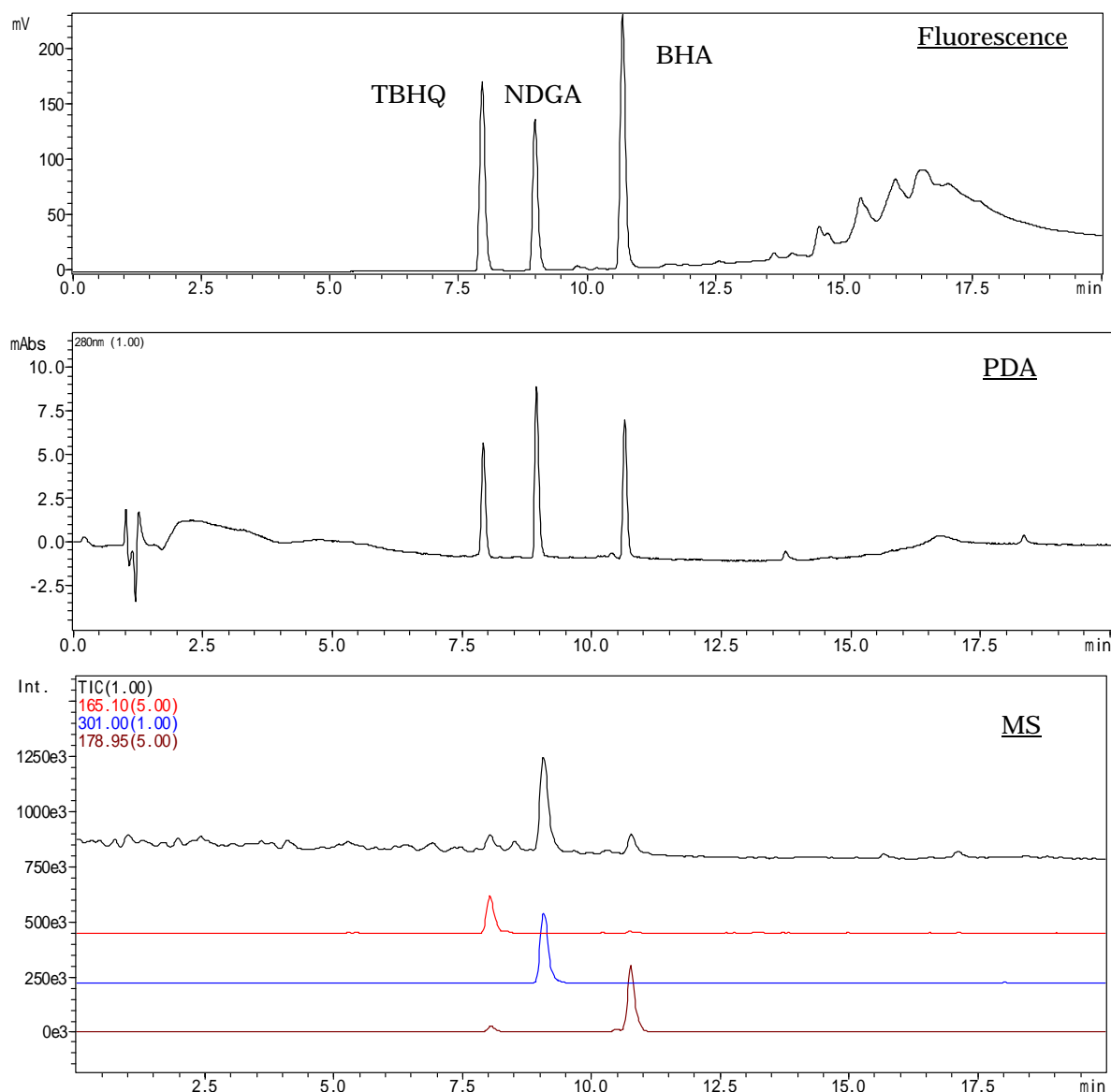
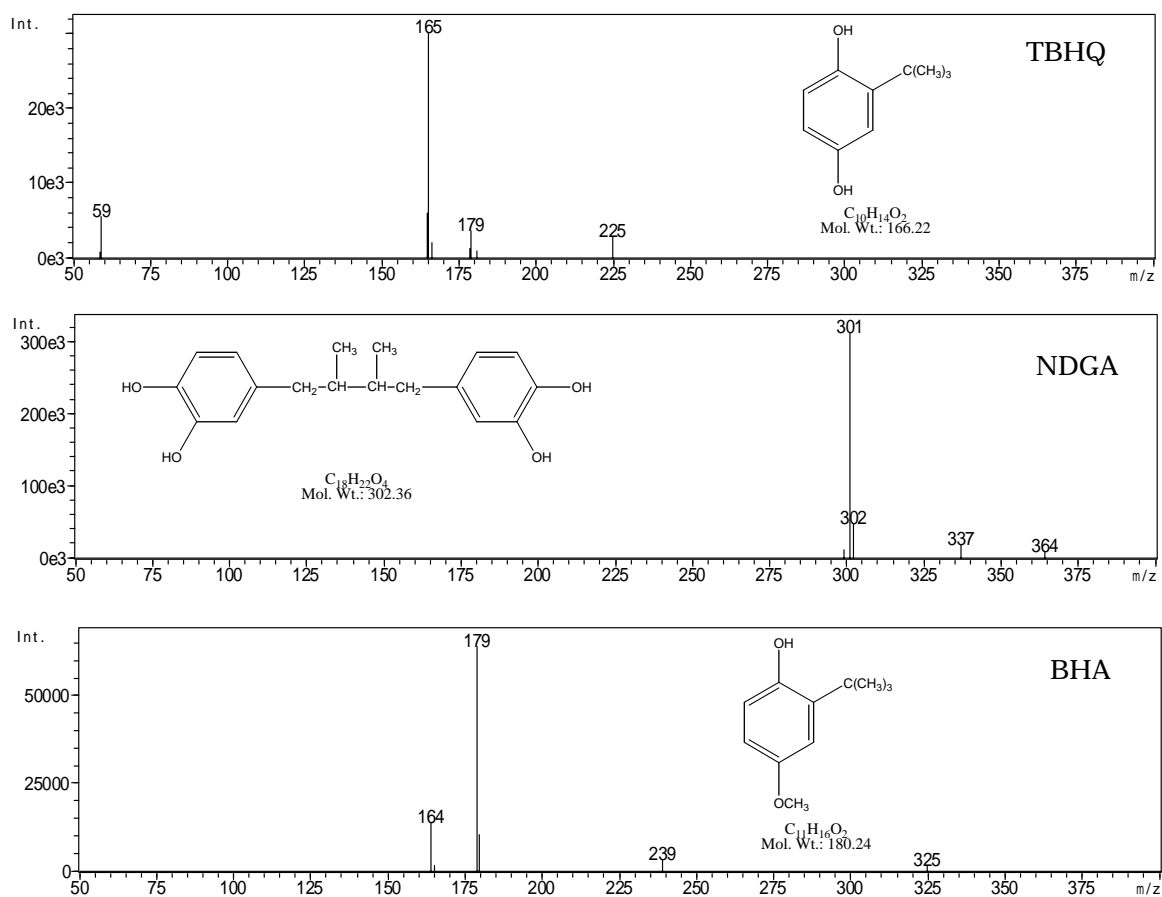


Fig. 1 Chromatograms for Phenolic Antioxidants Obtained by Fluorescence, PDA and MS Detectors



**Fig.2 Mass Spectra for TBHQ, NDGA and BHA**

**Table 1 Analytical Conditions**

<b>Instrument</b>	:LCMS-2010A system		
<b>Column</b>	: Shim-pack FC-ODS (4.6 mmI.D. x 75 mm)		
<b>Mobile phase A</b>	: water containing 0.05% acetic acid		
<b>Mobile phase B</b>	: acetonitrile		
<b>Gradient program</b>	:10%B(0min) – 95%B(15min) – 95%B(20min)		
<b>Flow rate</b>	:1.0 mL/min , Split ratio 2:8 (diode array detector & MS detector : fluorescence detector)		
<b>Injection volume</b>	: 5uL		
<b>Column temperature</b>	: 40		
<b>Detector</b>	:LCMS-2010A , SPD-M10Avp , RF-10A <sub>XL</sub>		
<b>wave length</b>	:PDA 240 – 340nm	<b>RF Ex:</b> 275nm	<b>Em:</b> 365
<b>Probe voltage</b>	: -3.5 kV (ESI-Negative mode)		
<b>CDL temperature</b>	: 250	<b>BH temperature</b>	: 200
<b>Nebulizing gas flow</b>	: 1.5 L/min		
<b>Drying gas flow</b>	:0.15MPa		
<b>CDL voltage</b>	: -50V		
<b>Q-array DC voltage</b>	: SCAN-mode	<b>Q-array RF</b>	:SCAN-mode
<b>SCAN range</b>	:m/z 50 - 400		

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