Qualitative and Quantitative Analyses of Three Bioactive Compounds in Traditional Chinese Medicine Gamboge by HPLC–PDA–ESI/MS\textsuperscript{n}

An ZHOU \textsuperscript{1,2}, Hongfei WU \textsuperscript{2*}, Daiyin PENG \textsuperscript{2}, Qinglin LI \textsuperscript{1,2} & Xiaojuan SUN \textsuperscript{3}

\textsuperscript{1} Anhui Province Key Laboratory of R&D of Chinese Medicine, 230038 Hefei, China
\textsuperscript{2} Anhui University of Traditional Chinese Medicine, 230038 Hefei, China
\textsuperscript{3} Thermo Fisher Scientific, 201206, Shanghai, China.

\textbf{SUMMARY}. A high performance liquid chromatography photo diode array UV detection electrospray ionization tandem mass spectrometry (HPLC–PDA–ESI/MS\textsuperscript{n}) method was developed and validated for the quality evaluation of gamboge (dried resin exuded from the stems of \textit{Garcinia hanburyi}). The contents of the three bioactive constituents (gambogenic acid, R-gambogic acid and S-gambogic) were determined by using HPLC–PDA, and their chemical structures were identified by HPLC–ESI-MS\textsuperscript{n}. The limits of detection and quantitation were between 0.039-0.048 μg/mL and 0.13-0.16 μg/mL. The intra- and inter-assay precisions, in terms of percent relative standard deviation, are less than 3.7 and 4.8 %, respectively. The accuracy, in terms of recovery percentage, ranged from 96.86 to 101.70 %. Good linearity (correlation coefficient > 0.9996) for each calibration curve of standards. HPLC-PDA-ESI-MS\textsuperscript{n} was use to analyze caged xanthones in gamboge. A total of 16 peaks were identified or tentatively characterized. The results indicated that the method could be considered to be a simple, rapid and reliable method for the quality evaluation of gamboge.

\textit{KEY WORDS}: Gamboge, \textit{Garcinia hanburyi}, HPLC–PDA–ESI/MS\textsuperscript{n}, Quality control, Traditional chinese medicine.

\* Author to whom correspondence should be addressed. \textit{E-mail}: wuhongfei2009@126.com