QUANTITATIVE DETERMINATION OF QUERCETIN IN GINKGO BILOBA LEAF EXTRACT (EGb 761) USING GC-MS

ABDULRAZAK S.1, 2*, NUHU A.A.1 AND YASHIM, Z.I.1
1Department of Chemistry, 2Department of Veterinary Physiology, Ahmadu Bello University, Zaria, Nigeria

ABSTRACT

Ginkgo biloba leaf extract (EGb 761) is one of the highest selling herbal medicinal products in the world. Quercetin, 2-((3, 4-dihydroxyphenyl)-3, 5, 7-trihydroxy-4H-chromen-4-one, is a flavonoid in Ginkgo biloba leaf extract that is partly responsible for many of its medicinal properties. The determination of percentage composition of quercetin is very important because quercetin is a vital component of flavonoids that are used for the standardisation of EGb 761 and other Ginkgo biloba products. Preliminary assessment using reversed phase high performance liquid chromatography with photodiode array detector (RP-HPLC-PDA) revealed the presence of this analyte at 11.5%, but with a rather high intra-day precision measured as percent relative standard deviation (%RSD) of 6%. The extract was then subjected to analysis using gas chromatography-mass spectrometry (GC-MS) and a better repeatability of <2% was obtained. The GC-MS method was then adopted for the determination of quercetin in EGb 761. The average concentration of this analyte in the extract was 12.53% using a three point calibration ($R^2 > 0.99$). The average recovery, as a measure of method accuracy was 101.6%. These results indicate that the GC-MS method was very suitable for the accurate and precise determination of quercetin in the studied matrix.

Keywords: Ginkgo biloba, chromatography, mass spectrometry, Quercetin

*Correspondence: sazzak175@gmail.com