A Simple HPLC Method for the Determination of Pentyl Gallate and Identification of an Alkaline Degradant

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SUMMARY. Pentyl gallate (PG) is a gallic acid n-alkyl ester with a promising antherpetic topical activity. No method for PG quantification is described in the literature. Therefore, the objective of this investigation is to develop and validate a simple method for determination of PG by High performance liquid chromatography (HPLC) considering its future application in therapy. A nanoemulsion was proposed as PG delivery system due to its low aqueous solubility that limits its delivery through the skin. Chromatographic separation was achieved on a C18 column with 50:49:1 (%, v/v) methanol:water:trifluoroacetic acid (TFA) as mobile phase at a flow rate of 1.2 mL/min; detection at 275 nm. The method was validated for linearity, precision, accuracy, robustness and specificity. The degradant detected under alkaline condition was structurally characterized by time-of-flight mass spectrometry (TOF-MS). All results indicate the method is adequate for PG analysis.