GREEN TEA IN TRANSDERMAL FORMULATION: HPLC METHOD FOR QUALITY CONTROL AND *IN VITRO* DRUG RELEASE ASSAYS

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EQUATIONS

$$LOD = S\frac{3}{a} \quad (1)$$

$$LOQ = S\frac{10}{a} \quad (2)$$

where: a is the slope of the calibration curve and S is the standard deviation of the y-intercept.

$$b = (X^t X)^{-1} X^t y \quad (3)$$

where: b is the matrix of model coefficients and X and y are the matrix and vector, respectively.

$$\varepsilon(b) = \sqrt{(X^t X)^{-1} \cdot \sigma^2} \quad (4)$$

where: $\varepsilon(b)$ is the matrix whose main diagonal represents the standard errors of the model estimators (b_i) and σ^2 is the population variance of the experiments, which can be estimated as s^2, using the center point replicates, from Equation 5:

$$s^2 = \frac{\sum (x_i - \bar{x})^2}{(n-1)} \quad (5)$$

$$\hat{V}_{effect} = \left(\frac{s^2}{2}\right) \quad (6)$$

$$\hat{V}_{mean} = \left(\frac{s^2}{n}\right) \quad (7)$$

$$\hat{\eta} - t_v \cdot S_{effect} < \eta < \hat{\eta} + t_v \cdot S_{effect} \quad (8)$$

where: η is the true value of an effect (population value), $\hat{\eta}$ represents the value obtained from the tests performed in the experiment; t_v is the value from the Student's distribution, and S_{effect} is the standard deviation of an effect.

$$Q_{real,t} = C_{measured,t} \cdot V_r \cdot V_a \cdot \sum^{n-1} C_a \quad (9)$$

where: $C_{measured,t}$ is the concentration measured at sampling time t, V_r is the volume of the diffusion cell, V_a is the aliquot volume and C_a is the concentration of the aliquot.

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