In general for propagation of errors from measured quantities *a* and *b* to some calculated quantity, ε, the formula for the variance in ε (based on a 1st order Taylor expansion) is:

$$\sigma_{\varepsilon}^2 \cong \sigma_a^2\left(\frac{\partial\varepsilon}{\partial a}\right)^2 + \sigma_b^2\left(\frac{\partial\varepsilon}{\partial b}\right)^2 + 2\sigma_{ab}^2\left(\frac{\partial\varepsilon}{\partial a}\right)\left(\frac{\partial\varepsilon}{\partial b}\right) + \dots$$

In the case of calculation of inhibition, *I*, from measured production in PAR, *P*, and in UVR, *U*, $I = (P-U)/P$ (cf. Eq. 2), or for convenience, equivalently, $I = 1-(U/P)$,

Evaluating:

$$\sigma_I^2 \cong \sigma_P^2\left(\frac{U}{P^2}\right)^2 + \sigma_U^2\left(\frac{1}{P}\right)^2$$

The term based on the covariance between *a* and *b*, σ_{ab}^2 is omitted as it is assumed that the *U* and *P* measurements are independent and thus are not expected to be correlated within any one incubation, thus σ_{ab}^2 is considered zero.