



STUDIES OF PHOTOCHEMISTRY IN *Tithonia diversifolia* EXTRACT: METHOD TO OBTAIN TAGITININ F, AN ANTI- INFLAMMATORY COMPOUND, IN HIGH QUANTITY

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Abstract: Both tagitinin C (TC) and tagitinin F (TF) are sesquiterpenes lactones (STLs) isolated from the *Tithonia diversifolia* (Asteraceae), which are known for their anti-inflammatory activity [1]. Recent *in vitro* studies demonstrated that TF have an interesting anti-inflammatory mechanism: inhibition of cyclooxygenase-1, 5-lipoxygenase and decreased secretion of inflammatory products by neutrophils without inducing neutrophil apoptosis, different of the other STLs [2-3]. However, TF is a minor compound in the *T. diversifolia* and TC is found in higher concentration [1]. Previous study shows that the TC converts in TF in aqueous medium and light [4]. Thus, the purpose of this study was to follow the photoconversion of TF from TC isolated and in a crude extract from *T. diversifolia* using aqueous and acid media. The acid could catalyze the reaction to obtain complete and faster photoconversion of TC in TF. However, it could also promote undesired reactions. TF is needed in high amount to *in vivo* evaluations. Therefore, TC isolated and crude extract were prepared (1.0 mg/mL) to study the photoconversion reactions in the following samples: (1) TC in aqueous medium with light; (2) TC in aqueous without light; (3) TC in acid medium with light; (4) TDE in aqueous medium with light; (5) TDE in acid medium with light. Quantification curve and limit of quantification of TC and TF were determined. The reactions were monitored in HPLC-UV-DAD using C18 column (4.6 mm x 25 cm), isocratic method: 50% ACN:H₂O and flow rate: 1 mL/min. The results showed that the reactions need the light to happens, and the acid medium does not hydrolyze the ester group present in the molecules of TC and in TF. Both TDE in acid and aqueous medium show complete conversion of TC in TF, but in the acid medium has the fastest rate of conversion. Thus, according the results it can be concluded that the acid medium and light it is a suitable method to obtain a complete conversion of TF from TC isolated or TDE. This method can be useful to obtain the high quantity of TF required to the future *in vivo* studies. Acknowledgements: PIBICT/FAPEMIG, UNIFAL- MG.

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