

# Influence of TiO<sub>2</sub> on prebiotic thermal synthesis of the Gly-Gln polymer

Leyton, P.

Saladino, R.

Crestini, C.

Campos-Vallette, M.

Paipa, C.

Berríos, A.

Fuentes, S.

Zárate, R. A.

The role of the titanium dioxide (rutile and anatase) with and without room light on the thermal synthesis of the glycine-l-glutamine (Gly-Gln) polymer is described. The efficiency in percentage of polymerization with room light was increased in 6% in the presence of rutile and in 23% in the presence of anatase. The thermal synthesis in the molten state was carried out in the absence and presence of both oxides. In all cases, the vibrational spectra showed characteristic group frequencies corresponding to a polypeptide structure. No spectral differences were observed by room light effect on the polymer on rutile. However, the polymer obtained in the presence of anatase and room light shows spectral changes associated with the formation of shorter new abundant and conformationally different species compared with the original polymer. The SEM-EDX characterization of the solid phase involved in the thermal synthesis showed that the morphology of the polypeptide is different in the presenc