

## ***Stability study of Squalane and Hemisqualane derived from Synthetic Biology***

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*Lipids from fermentative processes are a promising alternative towards sustainable high-value molecules without compromising natural resources [1]. Thus, squalene, the precursor of cholesterol in humans, recently has been shown to reduce side-effects of chemotherapy and is widely used as adjuvant for pharmaceutical applications [2,3]. However, squalene is an unsaturated lipid and therefore susceptible to undergo oxidation. As a more stable alternative, processes to produce commercial squalane (SQ) and hemisqualane (HSQ) have been also developed. Since, in this type of products, the main industrial challenge is the stability of the physicochemical properties, the aim of this research was: To assess the possible alterations of SQ and HSQ during a three-month study at controlled temperature (50 °C) and humidity (75%). Samples were characterized at different sampling times (T0-T3) by Gas Chromatography-Mass Spectrometry (GC-MS), Differential Scanning Calorimetry (DSC) and Fourier-Transform Infrared Spectroscopy (FTIR) as well as biocompatibility in human keratinocytes cells (HaCat). According to the obtained data, SQ and HSQ concentration decreased after two months of storage (T2). On the other hand, no major alterations were observed throughout T2 to T3 since no oxidation compounds were detected. Biocompatibility test showed no toxicity without changes during the accelerated study. Finally, DSC pointed out that the thermal decomposition temperature of both molecules remained stable throughout time (T0-T3). The obtained results did not showed signs of oxidation during the assayed time that could compromise the biocompatibility of SQ and HSQ.*

### **REFERENCES**

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