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Lower the devastating impact of the emerging pollutants in the aquatic environments, especially the sunscreen products, is a major challenge in the 21st century. The growing consciousness of the risks associated with skin exposure to ultraviolet (UV) radiation has led to an increased use of sunscreens and, consequently, introduction of new chemical compounds in the marine environment. Sunscreens present the fastest growing sales globally (7% per year over the last 5 years), associated to the coastal areas population growth and tourism activities [1]. It is thus, particularly challenging to develop safer and innovating UV-absorbing materials derived from biological sources like mycosporine and mycosporine like amino acids [2]. These molecules are photostable, do not generate reactive oxygen species when exposed to UV radiation and have multifunctionality both in terms of therapeutic values (antioxidant ,sunscreen protection and photoprotection attributed to the high molar abosorbivity) and ecological significance (pigment in photosynthesis, intracellular nitrogen storage, etc) [3].

In our research group, we have been mimicking the functionality of some marine organisms to develop photoprotective and environmentally sustainable UV-absorbing compounds and assessing their impact in different aquatic ecosystems. To do so, we are using mycosporine and mycosporine like amino acids extracted from different marine organisms as UV-absorbing bioactive molecules and biopolymers or proteins (chitosan, collagen and hyaluronic acid) to graft these bioactive molecules via chemical coupling ie via amidation [2] and esterfication. In the present communication, we will present our recent study on the photostability of these bioactive molecules and their conjugates that was assessed by emulating the solar radiation conditions using a solar simulator. The photostabillity (abiotic degradation) was studied in pure water and in different natural matrices such as fresh, river, sea and estuary water. The photoproducts post degradation will be also discussed.

[1] Sanchez-Quilles et al, Environment International 83 (2015) 158

[2] Fernandes et al, ACS Appl Mater Interfaces 7 (2015) 16558

[3] Bhatia et al. *Pharmacognosy Reviews*, *5*(10) (2011) 138.