Interactions between curcumin and cell membrane models by Langmuir monolayers

María Pedrosa[a,b], Julia Maldonado-Valderrama[a,b], María José Gálvez-Ruiz[a,b,*], mjgalvez@ugr.es

[a]Biocolloids and Fluid Physics Group, Department of Applied Physics, University of Granada, Campus Fuente Nueva, s/n, C.P. 180.71, Granada, Spain

[b]Excellence Research Unit "Modeling Nature" (MNat), University of Granada, Cuesta del Hospicio, s/n, C.P. 18010, Granada, Spain

*Corresponding author at: Biocolloids and Fluid Physics Group, Department of Applied Physics, University of Granada, Campus Fuente Nueva, s/n, C.P. 18071, Granada, Spain

Supplementary Data

S1. Study of the stability of the Cur monolayer

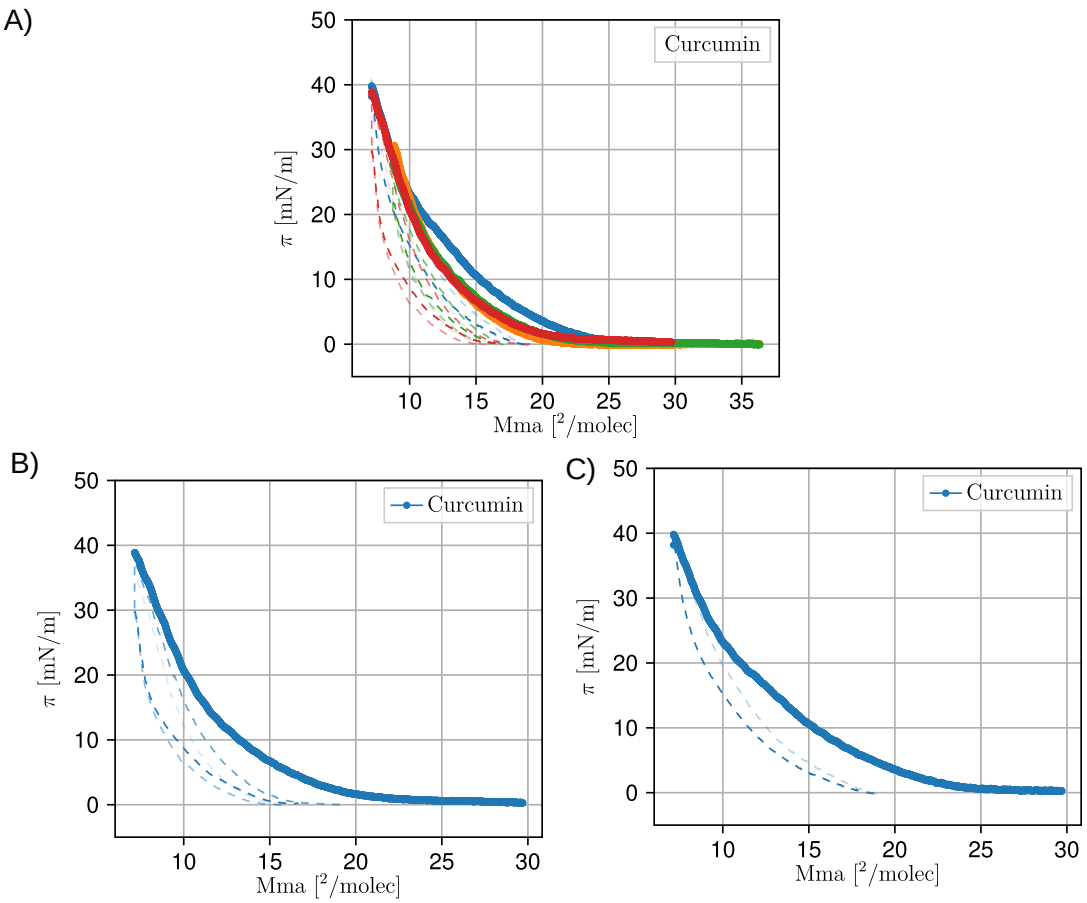

Figure S1. Comparison of different curcumin isotherms with compression-expansion cycles (A). In (B) and (C) two single isotherms selected from (A) were plotted to better analyze the cycles. Previous to each expansion and compression, the monolayer was let to relax during 5 minutes Monolayers were spread on PBS pH 7.4 at 20 ºC.

Fig. S.1 presents several Cur isotherms measured during separate experiments to prove the stability and reproducibility of the Cur monolayer. In addition, compression-expansion cycles have been recorded for each monolayer. It can be observed that some hysteresis appears during the compression-expansion cycles, but all compression stages end at the same point of the isotherm, which can reflect that no substance is lost in the subphase and Cur monolayer remains stable. The hysteresis may be due to the fact that, after the first compression, the Cur molecules remain together forming a monolayer on the surface, while at the first moments after deposition molecules are more spread on the surface. The BAM images before and after the first cycle confirm these results (fig. S.2)

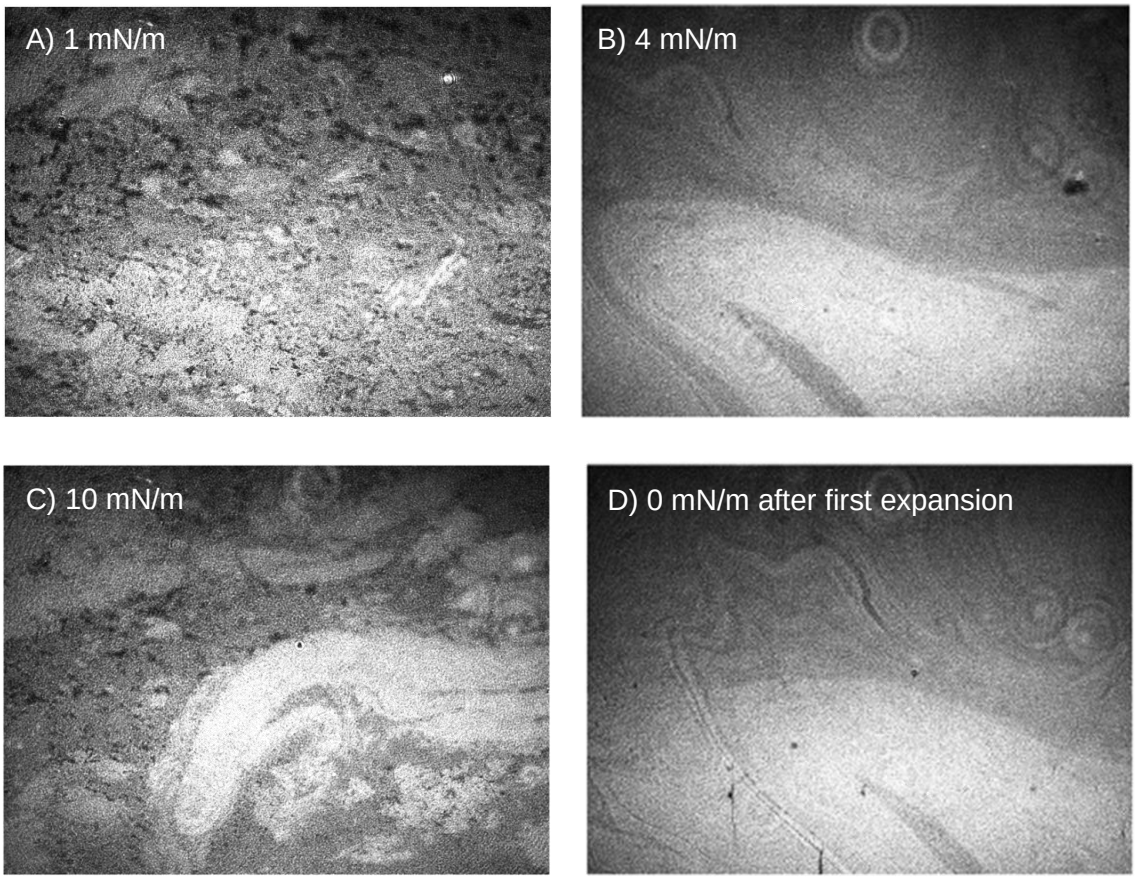

Figure S2. MicroBAM images of the Cur monolayer at different stages of the compression-expansion cycles. The field of view is 3584x2688 µm. All images were taken in PBS buffer, pH 7.4 and 20 ºC.