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Comment on "Gelation of microemulsions and release behaviour of sodium salicylate from gelled microemulsions" [Eur. J. Pharm. Biopharm. 71 (2009) 297]

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The paper cited in the title [1] deals with the potential use of gelled microemulsions in drug delivery systems and the authors claim that they prepared a novel gelled microemulsion with which they measured release rates of a model drug. However, no experimental evidence is provided for the formation of microemulsions and we have severe doubts that a gelled microemulsion is formed under the experimental conditions described. The main points of criticism are as follows:

(1) The authors do not consider that the phase behaviour and thus the microstructure of microemulsions strongly depend on the temperature and the composition [2]. Although measurements are carried out at different temperatures (FT-IR at RT, POM at 75 °C – RT, release rates at 37 °C, sol–gel transitions at various T) and compositions, no phase studies are reported. In addition, the influence of the gelator and the model drug on the phase behaviour is not studied [3]. How did the authors locate the 1-phase microemulsion region?
(2) The chosen gelator is unsuitable as the binary organogel is turbid [3], raising the question of how the authors distinguished between a gelled, phase separated system and a gelled 1-phase microemulsion.
(3) The authors consider propylene glycol (PG) as co-surfactant referring to [4]. This, however, is incorrect. According to Table1 of [4] the droplet size does not change with increasing PG content, which can only be the case if PG is a co-solvent. Addition of a co-surfactant to a 1-phase microemulsion would increase the interfacial area and hence decrease the droplet size.
(4) No experimental evidence is given for the structure proposed in Fig. 6. A bicontinuous structure cannot coexist with water droplets in an equilibrated microemulsion as this would require two different curvatures. Moreover, the different compositions of the samples automatically lead to different microstructures, *i.e.* no general picture can be drawn.

References

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