

Abstract Submitted  
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**Drying drops of blood**<sup>1</sup> DAVID BRUTIN, BENJAMIN SOBAC, Université de Provence, BORIS LOQUET, Bio 13, JOSÉ SAMPOL, Université de la Méditerranée — The drying of a drop of human blood is fascinating by the complexity of the physical mechanisms that occur as well as the beauty of the phenomenon which has never been previously evidenced in the literature. The final stage of full blood evaporation reveals for a healthy person the same regular pattern with a good reproducibility. Other tests on anemia and hyperlipidemic persons were performed and presented different patterns. By means of digital camera, the influence of the motion of red blood cells (RBCs) which represent about 50% of the blood volume, is revealed as well as its consequences on the final stages of drying. The mechanisms which lead to the final pattern of dried blood drops are presented and explained on the basis of fluid and solid mechanics in conjunction with the principles of hematology. Our group is the first to evidence that the specific regular patterns characteristic of a healthy individual do not appear in a dried drop of blood from a person with blood disease. Blood is a complex colloidal suspension for which the flow motion is clearly non-Newtonian. When drops of blood evaporate, all the colloids are carried by the flow motion inside the drop and interact.

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