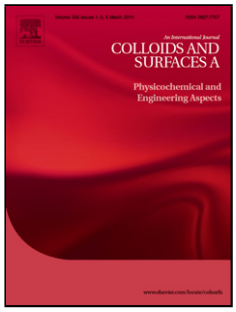

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The study of drying and pattern formation of whole human blood drops and the effect of thalassaemia and neonatal jaundice on the patterns.

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Abstract

In this paper, we report a study on the drying process of whole human blood drops on glass substrates. It was shown previously (D. BRUTIN1, B. SOBAC, B. LOQUET AND J. SAMPOL, J. Fluid Mech. (2011), vol. 667, pp. 85-95) that some diseases can change the patterns in dried drops of blood, but the reason behind the differences has not been discussed. In this paper, we explain the physical reasons behind the differences in patterns analaticaly in a quantitative and detailed way. We have analysed samples of three groups: healthy adults, adults having thalassaemia, and infants with jaundice. We investigate the formation of large cracks in three groups and measure the length of cracks for the jaundice group and find a relation between the bilirubin level and the length of large cracks. Then we show that the height profile of the dried drops is different for the three group. We also compare the dynamics of evaporation and

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