Abstract Submitted
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Hydrodynamic behavior of shaking flasks used for producing a recombinant protein by filamentous bacteria MARIA SOLEDAD CORDOVA AGUILAR, MONICA GARCIA, MAURICIO ALBERTO TRUJILLO-ROLDAN, GABRIEL ASCANIO, ROBERTO ZENIT, ENRIQUE SOTO, Universidad Nacional Autonoma de Mexico — Shake flasks are widely used for culture research. The agitation rate is one of the factors that determines the mass transfer. However, it has not been studied in detail. In this work, a comparison of the hydrodynamic performance for conventional, baffled and coiled spring Erlenmeyer flasks is presented. The velocity fields for a horizontal plane were measured by means of a Particle Image Velocimetry (PIV) technique and high speed videos were recorded to observe the behavior of the interface as a function of the agitation rate. It was observed not only that there is a strong dependence between the geometry and the hydrodynamics, but also there is a good agreement with the results obtained previously by Gamboa et al, in 2011, with the evaluation of the influence of culture conditions of *S. lividans* on protein O-glycosylation. The turbulence intensity increases with shaken rate. However, for the baffled geometry, it was observed a decrease for a critical speed, which is related with the *in*-phase and *out*-phase regions. These results can be an explanation for the variations in protein productivity as a function of the flask geometry and the differences in aggregation morphology and the pattern of O-glycosylation of the recombinant protein.

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