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Modelling the settling behavior in virgin olive oil from a horizontal screw solid bowl

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**Modelling the settling behavior in virgin olive oil from a horizontal screw solid bowl.**

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**Abstract**

Nowadays, in the oil mill, settling tanks are used as an alternative clarification technology to the vertical centrifuges used to clarify the virgin olive oil from the decanter. Despite the fact that these settling tanks are being implemented, there is limited knowledge on the settling process. In this preliminary work, the effect of room temperature (15, 20 and 30 °C) in the static settling of virgin olive oil ('Picual' variety) in a settling column has been studied. First, the particle-size distribution in oil was analysed resulting in a  $d_{50}$  of around 165  $\mu\text{m}$ . As expected, a temperature of 30°C showed higher values of settling efficiency compared to lower temperatures (15 and 20°C). Finally, a simulation study of this static settling case was carried out using computational fluid dynamics (CFD) in which good agreement was found compared to experimentally determined process behavior.

**Keywords:** *Settling tank, CFD, Graduated cylinder, Virgin olive oil, Clarification.*

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