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Design of Porous Orally Disintegrating Tablets by Direct Compression and Sublimation †

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Abstract: Orally disintegrating tablets (ODTs) offer many advantages over conventional tablets, especially for the pediatric population. Direct compression is a straightforward method of producing ODTs. However, the relatively low porosity of the tablets prolongs the disintegration time. In this sense, this work aimed to design ODTs by direct compression, including a sublimating agent, to obtain highly porous tablets. Tablets consisting of a model drug (ivermectin), sublimating agent (camphor), diluent, super disintegrant, lubricant, glidant, and a sweetening agent were produced in an eccentric tablet press. Tablets were kept at 60°C for 72 h in an oven to ensure complete sublimation, verified by weight loss. Tablet hardness, friability, and disintegration time were evaluated and compared with control tablets (without camphor). Results showed that porous tablets disintegrated approximately 42% faster than control samples. Hardness results were 2.8 Kp and 5.1 Kp for porous and control tablets, respectively. However, friability for porous tablets (1.89%) exceeded the acceptance criteria, but control tablets did not (0.42%). In conclusion, these preliminary results are very promising since ODTs with satisfactory disintegration times were produced. Further investigations should be carried out to improve friability and optimize the formulations.

Keywords: direct compression; orally disintegrating tablets; porous tablets.

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Conflicts of Interest

The authors declare no conflict of interest.