Electrospun polyvinyl-alcohol nanofibers as oral fast-dissolving delivery system of caffeine and riboflavin - DTU Orbit (28/01/2019)

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Fast-dissolving drug delivery systems were prepared by electrospinning using polyvinyl alcohol (PVA) as the filament-forming polymer and drug carrier. Caffeine and riboflavin were used as the model drugs. Scanning electron microscopy (SEM), Fourier-transform infrared (FTIR) and X-ray diffraction were applied to investigate the physicochemical properties of electrospun nanofibers. The SEM images showed that nanofibers prepared from electrospinning PVA/drug aqueous solutions possessed an ultrafine morphology with an average diameter in the range of 260-370 nm. Pharmacotechnical tests showed that PVA/caffeine and PVA/riboflavin nanofibrous mats had almost the same dissolution time (about 1.5 s) and wetting time (about 4.5 s). The release measurements indicated that drugs can be released in a burst manner (caffeine to an extent of 100% and riboflavin to an extent of 40% within 60 s) from the PVA nanofibrous matrices.

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