



جامعة حائل  
University of Ha'il

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# Engineering of inhalable microparticles containing terbinafine for management of pulmonary fungal infections

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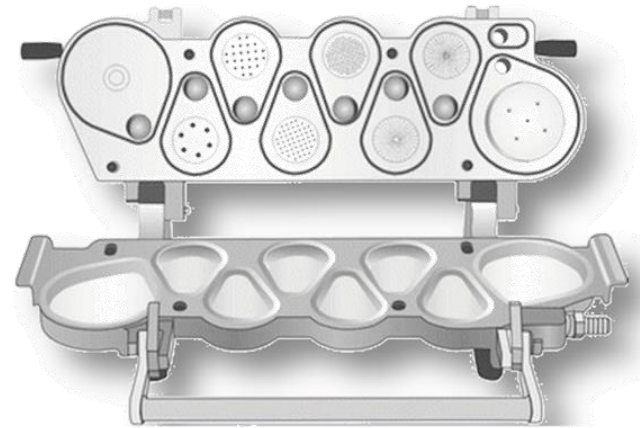
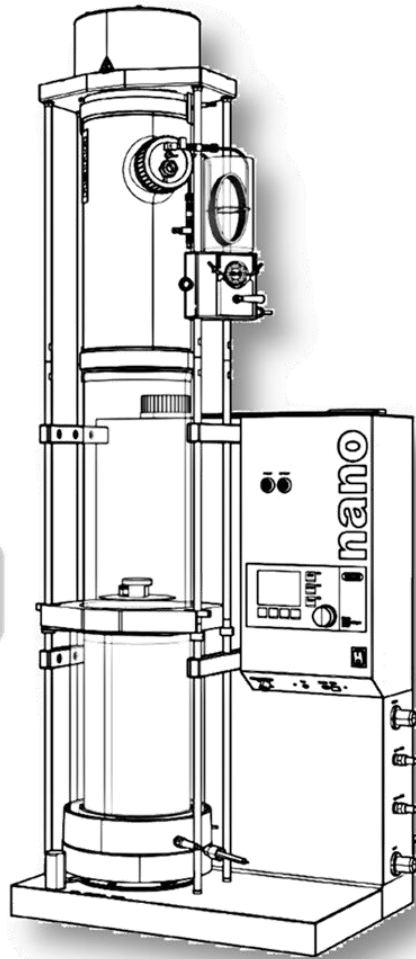
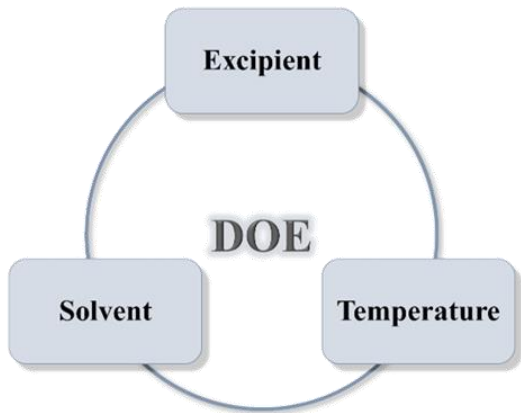
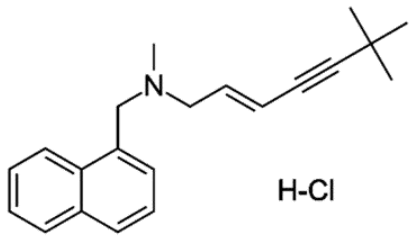
9/10/11 December 2020

# Introduction

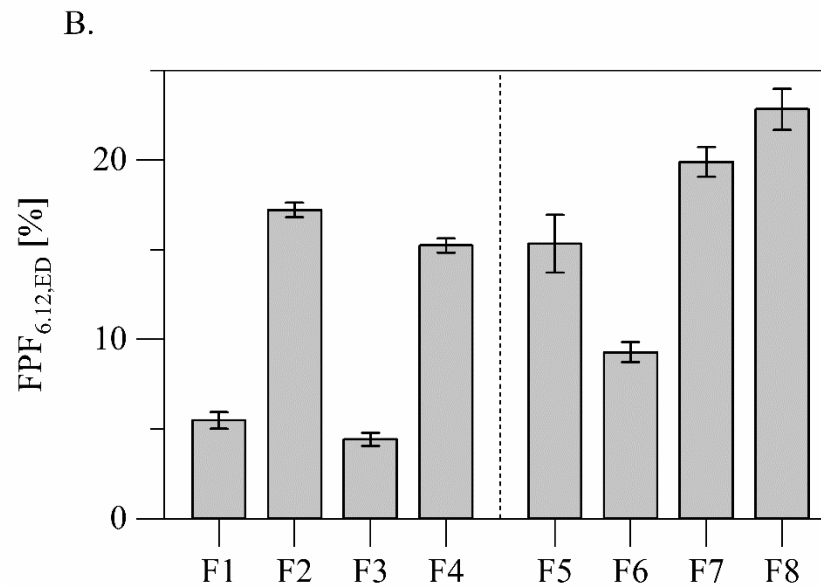
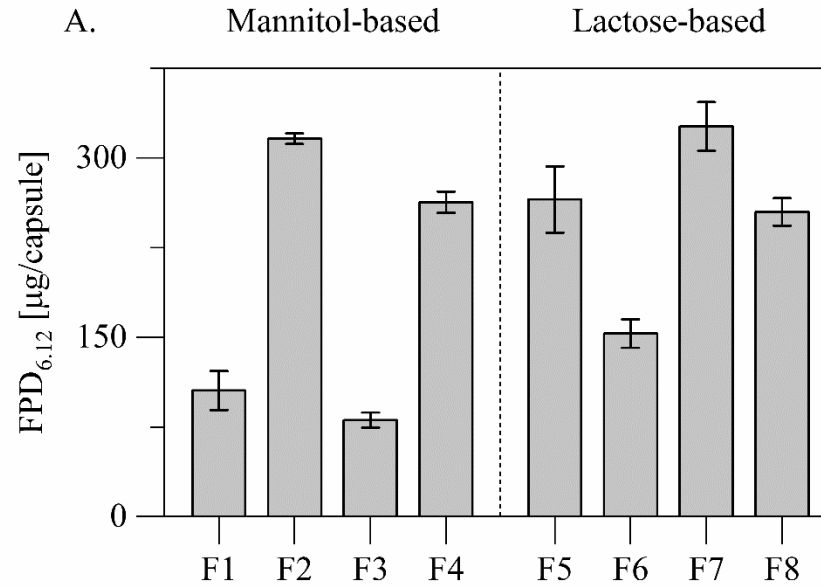
- Pulmonary fungal infections pose a poorly estimated, but significant global health burden.
- Terbinafine is a broad-spectrum antifungal agent with potential therapeutic value in management of pulmonary aspergillosis.

A dry powder inhalation formulation of terbinafine holds a potential therapeutic value.

# Methods



# Aerodynamic Performance



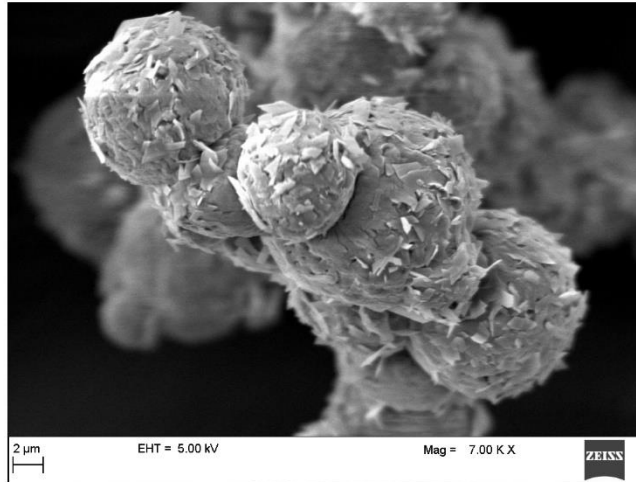
# Morphology

Aqueous

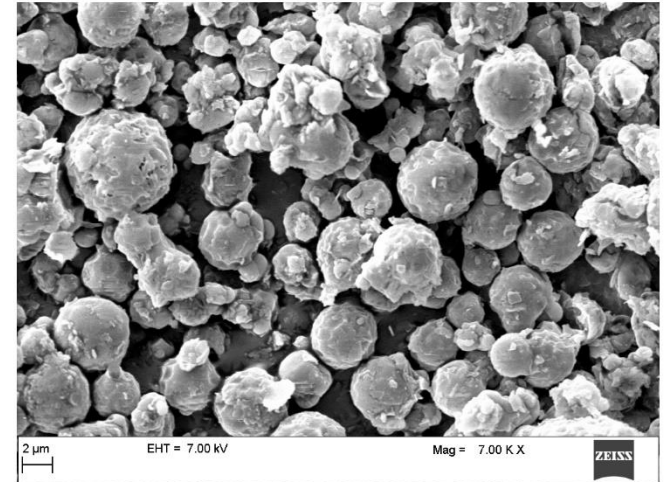
50.5 % w/w ethanol in  
water

Mannitol  
75 °C

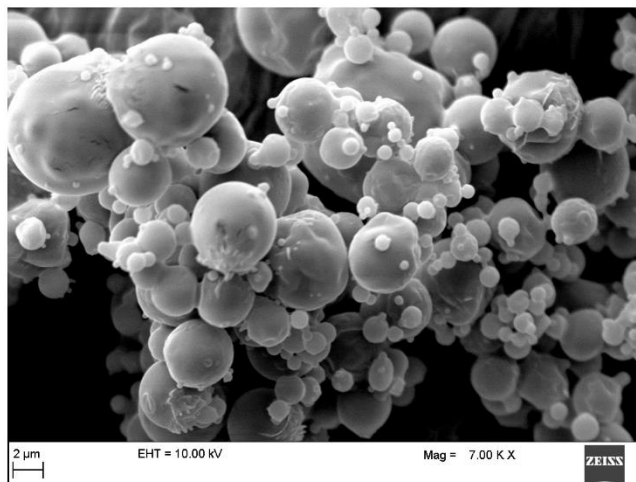
F1: M-E00-T75



F2: M-E50-T75

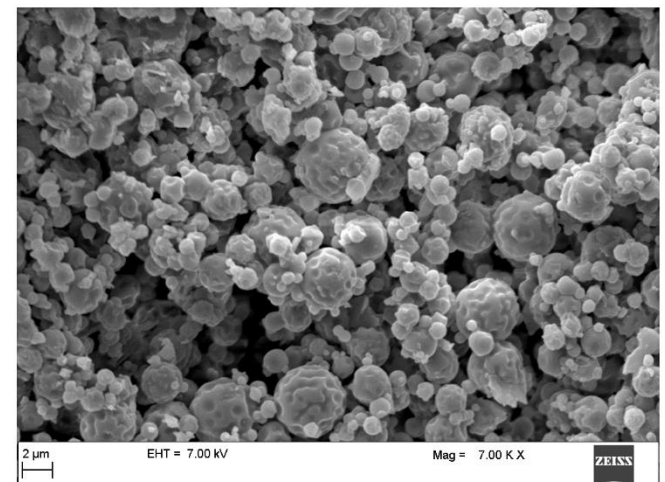


F7: L-E00-T90

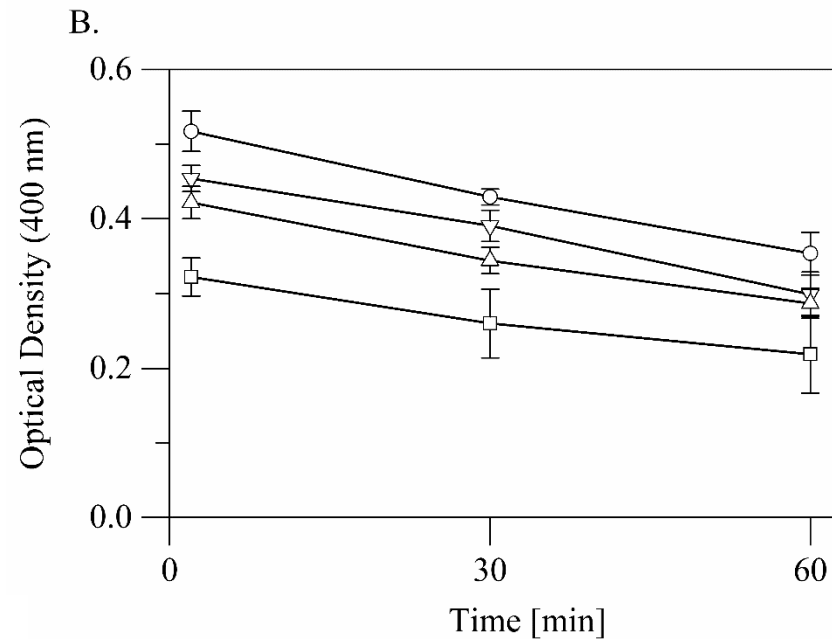
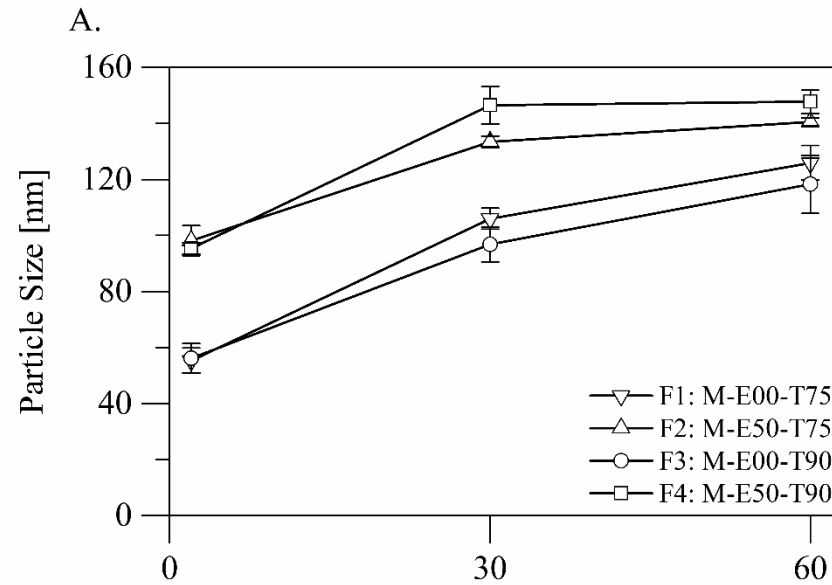


Lactose  
90 °C

F8: L-E50-T90



# Disintegration/Dissolution



# Highlights

- Dry powder inhalation formulations of terbinafine were studied.
- Engineering of respirable particles using nano spray drying, which involves a vibrating-mesh atomizer, should carefully consider the dependence of the size of spray droplets on the spray solution viscosity.
- Dry powder inhalation of spray dried solid dispersions may have the potential to avoid clearance by alveolar macrophages and mucociliary escalation and to thus provide prolonged local action.

**Thank You**