**1 Introduction**

Biopolymers based on lactic acid and glycolic acid have attracted great interest in various medical applications. This study reviews several applications of nano spray drying for the formulation and encapsulation of active ingredients in PLA/PLGA biopolymers.

**2 Preparation procedures**

1. PLA/PLGA particles from DCM solution (Büchi Labortechnik AG 2009), (J) PLGA carrier particles (Dahili & Feczkó 2015), (K) PLGA particles for surface coating (Beck-Broichsitter et al. 2012), (H) PLA particles prepared from acetone solution (Draheim et al. 2015), (I) PLA particles (Anzar et al. 2018), (G) Composite particle fabricated from aqueous suspension containing sildenafil-loaded PLGA nanoparticles (Beck-Broichsitter et al. 2012), (F) Simvastatin-loaded PLGA particles (Anzar et al. 2018), (E) Nano-in-nanoparticles made of PEG/PLGA loaded with albumin primary nanoparticles containing siRNA (Amsalem et al. 2017), (D) Nimodipine-loaded PLGA particles for suspension in fibrin sealant (Bege et al. 2013), (C) Dexamethasone-loaded PLGA particles for the treatment of inflammation (Schafroth et al., 2012)

2. Various active ingredients are encapsulated in spherical particles (e.g. small dental implants) (Baghdan et al. 2018), (L) PLGA spheres obtained from acetonitrile/water (95:5) solution (Büchi Labortechnik 2017).

3. Nano spray drying offers new possibilities for particle design and nanocomposite structures for controlled drug delivery systems.  

4. The gentle drying conditions favor the formation of spherical particles with a smooth or structured surface.

**3 Applications in the therapeutic field**

- **Inhalation diseases** (e.g. pulmonary arterial hypertension with sildenafil) (Beck-Broichsitter et al. 2012, 2015)
- **Immunosuppressive diseases** (e.g. by dexamethasone) (Schafroth et al., 2012)
- **Cancer** (e.g. breast cancer by simvastatin) (Anzar et al. 2018)

**4 Conclusion**

1. PLA/PLGA particles from approx. 2 μm to below 200 nm can be produced in the laboratory scale by nano spray drying.
2. Various active ingredients are encapsulated in spherical particles and nanocomposite structures for controlled drug delivery systems.
4. The gentle drying conditions favor the formation of spherical particles with a smooth or structured surface.

**5 References**

- Arpagaus, C., 2019. PLA/PLGA nanoparticles prepared by nano spray drying. J. Pharm. Invest. 1–22. (Review paper with the listed references)