

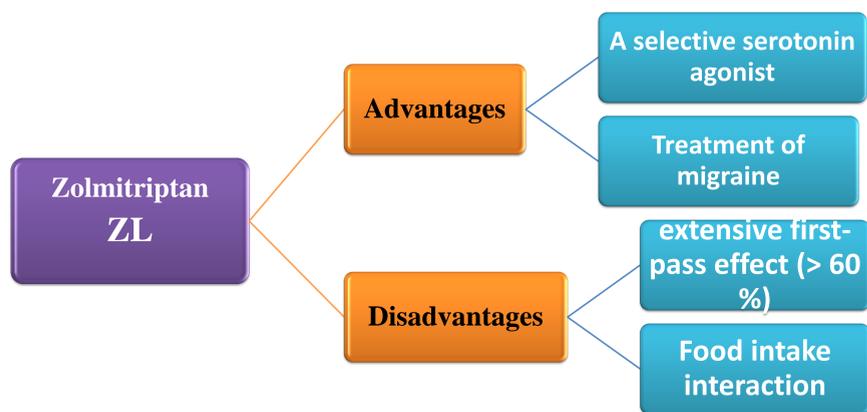
Comparative study between buccal tablets and buccal hard gelatin capsules in order to improve the bioavailability of Zolmitriptan

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1. Introduction



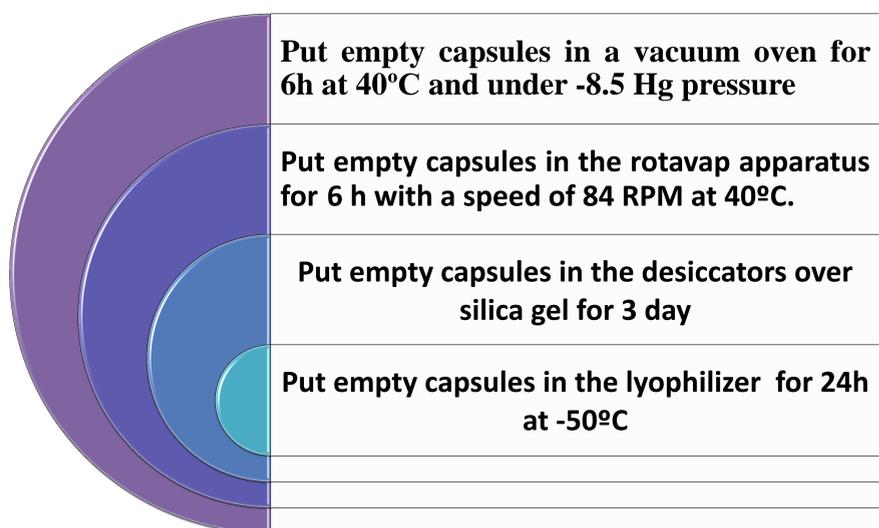
2. Aim

Avoids the extensive first-pass effect (>60 %) of ZI using buccal route of administration.

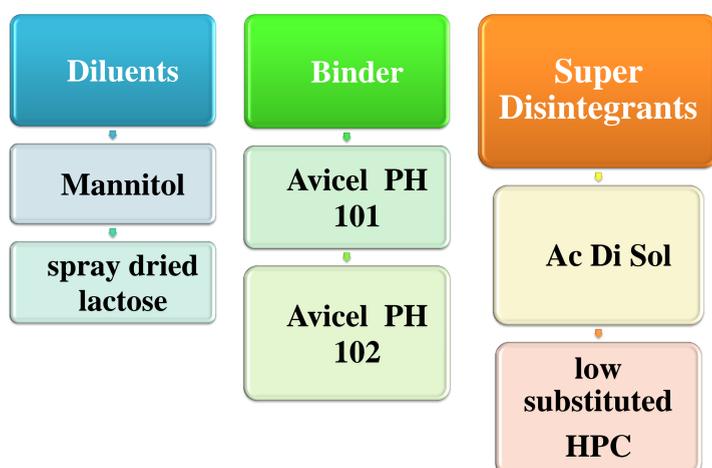
Comparative study between buccal tablets and buccal hard gelatin capsules to determine the best selected buccal dosage form.

3. Methodology

I) Preparation of buccal hard gelatin capsule



II. tablet and capsule formulation



III) Evaluation of buccal tablets and buccal hard gelatin capsules

- ✓ Wetting time (WT).
- ✓ wetting absorption ratio (WAR).
- ✓ Disintegration time.
- ✓ In vitro dissolution study.
- ✓ In Vitro permeation through buccal mucosa.
- ✓ Bioavailability of ZL in the selected formulae

4. Results

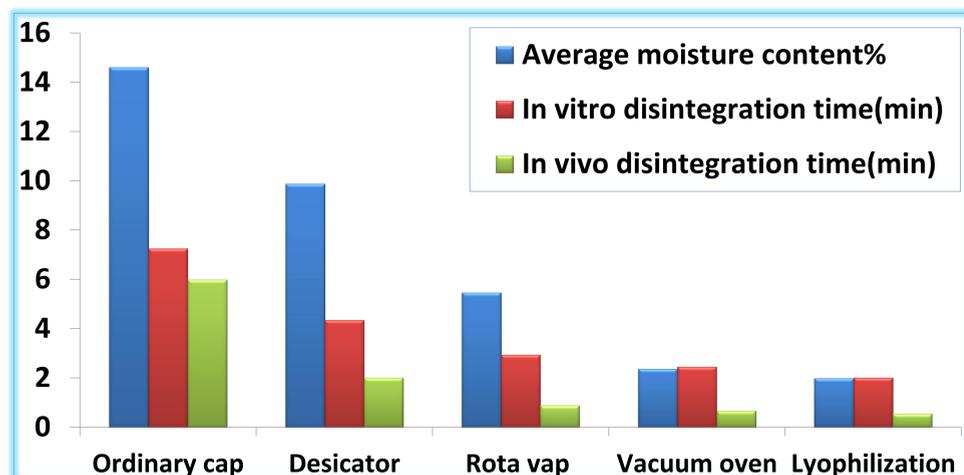


Figure (1): Histogram of the % moisture content, in vitro disintegration time (min) and in-vivo disintegration time

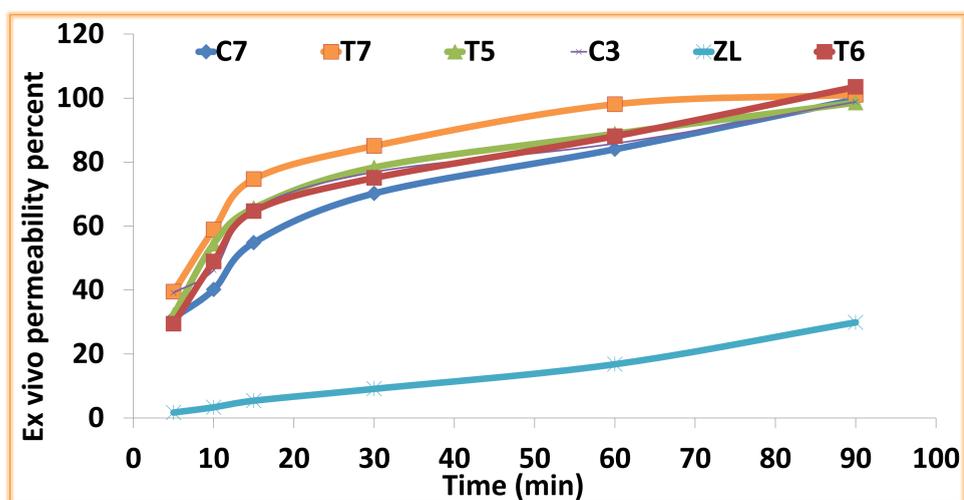


Figure (2): Diffusion profile of ZL from different formulae in comparison to the oral commercial one

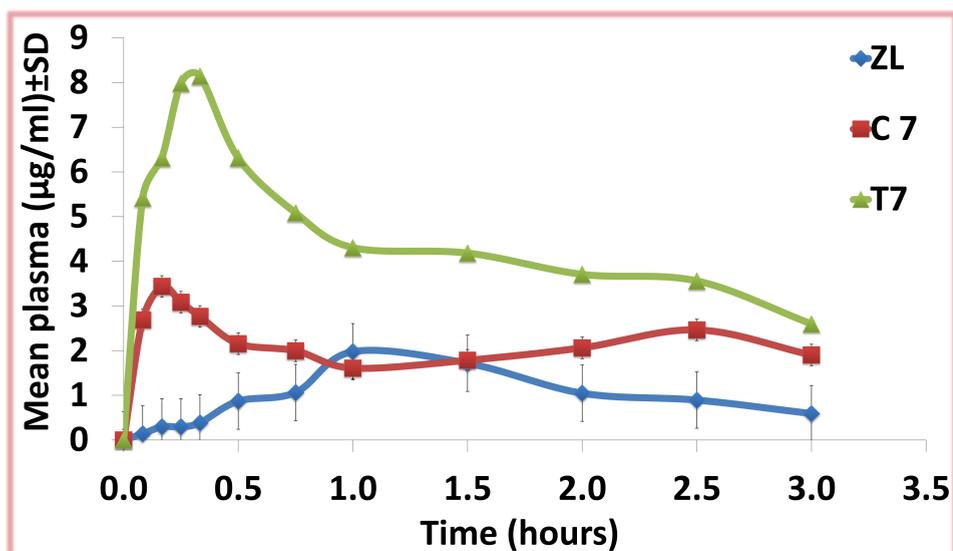


Figure (3): Mean plasma ZL from pure ZL, buccal capsule C7 and buccal tablets T7.

5. Conclusion

- ✓ The lyophilization drying method was the best drying method to produce buccal capsules
- ✓ Mannitol as a diluents and Avicel PH 101 as a binder and Ac Di Sol as superdisintegrant considered a suggested excipients for buccal preparations.
- ✓ The buccal tablet which showed higher bioavailability than commercial oral tablets and even the buccal dried hard gelatin capsules.

6. References

- Shiledar RR, Tagalpallewar AA, Kokare CR. Formulation and in vitro evaluation of xanthan gum-based bilayered mucoadhesive buccal patches of zolmitriptan. Carbohydr Polym. 2014 Jan 30;101:1234-42. doi: 10.1016/j.carbpol.2013.10.072. Epub 2013 Oct 26.