Comparison of the rheological behaviour of ready-to-use suspension vehicles and formulated for patients with swallowing disorders.

Claraz P.[1,2], Fillaudeau L.[3], Guillemot C.[1], Puisset F.[1,2] Arellano C.[2]
1.Pharmacie, IUCT – Oncopole, France - 2.Centre de Recherche en Cancérologie de Toulouse, équipe 14, France - 3. Toulouse biotechnology Institute, France

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Introduction

- For patients with **swallowing disorders** or **children** < 6 years old
- Oral suspension with ready-to –use vehicle : **Inorpha®** and **Orablend®**

Objective : rheological comparison of Inorpha®, Orablend® and compounded vehicle (xanthan gum 0,4%) with same viscosity as Orablend®

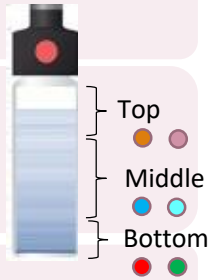
Materials & méthodes

Suspension preparation : 1% powder (w/w)
- Inorpha - Orablend (WT)
- **0,4%** (v/w) xanthan gum vehicle (XGV)
- **η Orablend ® = η XGV = 70 cP**

Size distribution
- Morphogranulometer : MorphoG2
- **Insoluble powder** was crushed, sieved and analysed as a **model**

Rheological behavior :
- Rheometer : **Mars III** with **cone-plate : C60/1°, P20 geometry**
- Ascendant and down ramp of shear rate (0.001s-1 to 1000s-1)
- Viscosity **: 57s^{-1}** (in order to mimic stress occurring during swallowing)

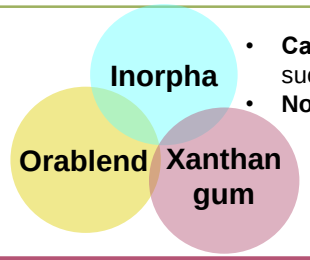
Sedimentation kinectis
- **TurbiscanLAB®**
- **Transmission** : 0°
- **Backscattering** : 135°
- Wavelenght : 880nm at 25°C
- **Days 0, 30, 60 and 90**



Resuspendabillity
- 30mL of suspension of each vehicle **after d90 of sedimentation**
- Number of reversal needed for visually homogeneous resuspension (8 operators)

Conclusion

- **Dysphagia ok : η > 51 cP**
- **Prevent sedimentation**
- Contain excipients of interest



- **Can't prevent sedimentation** (in such conditions)
- **Not compatible with dysphagia**

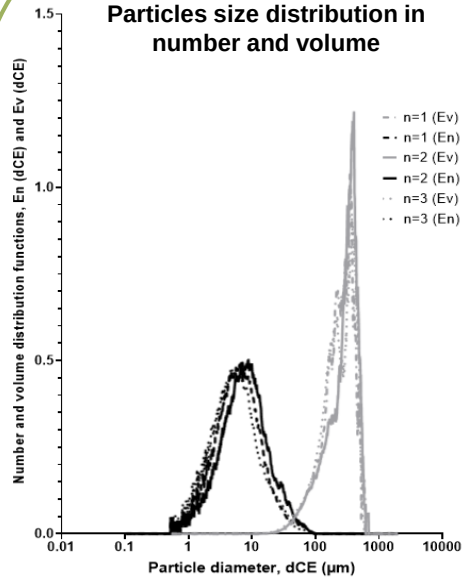
- **Dysphagia ok : η > 51 cP**
- Can't prevent sedimentation

need for new compounded vehicle

Results

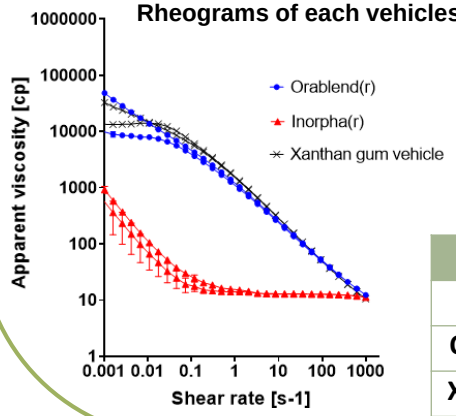
GRANULOMETRY

Particles size distribution in number and volume

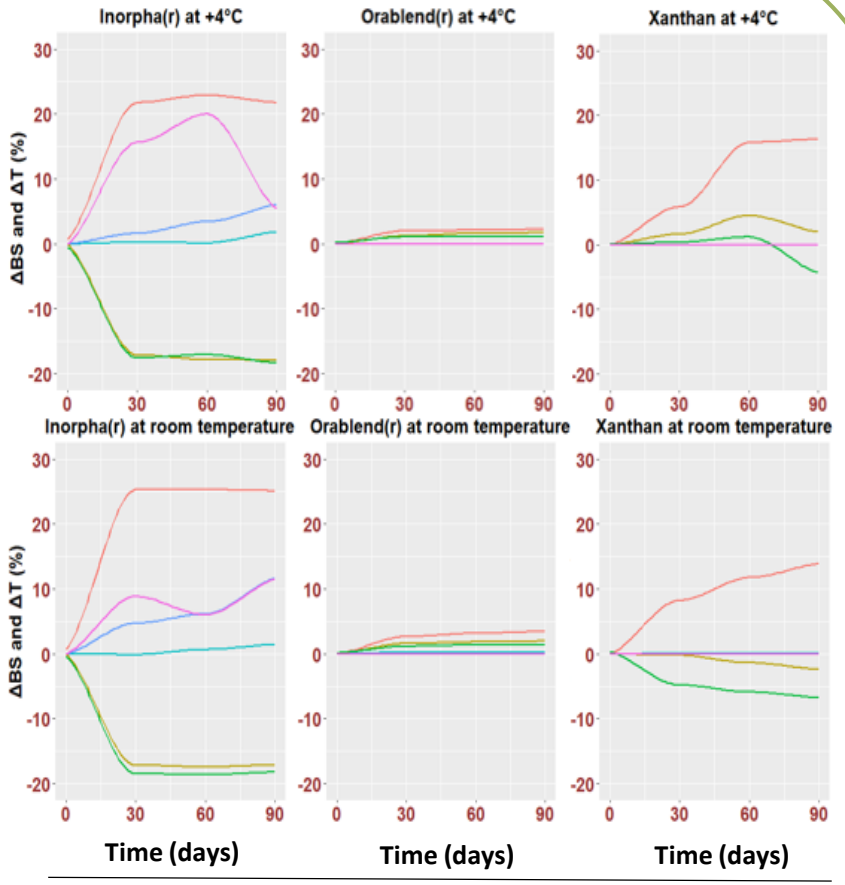


RHEOLOGY

Rheograms of each vehicles



SEDIMENTATION



VISCOSITY

RESUSPENDABILITY

Vehicles	Viscosity (cP) (mean +/- SD)	Median	Min	Max
Inorpha®	12.72 +/- 0.18	43,5	20	100
Orablend®	70.63 +/- 1.28	3	1	17
XGV 0.4%*	74.12 +/- 1.19	129	36	324