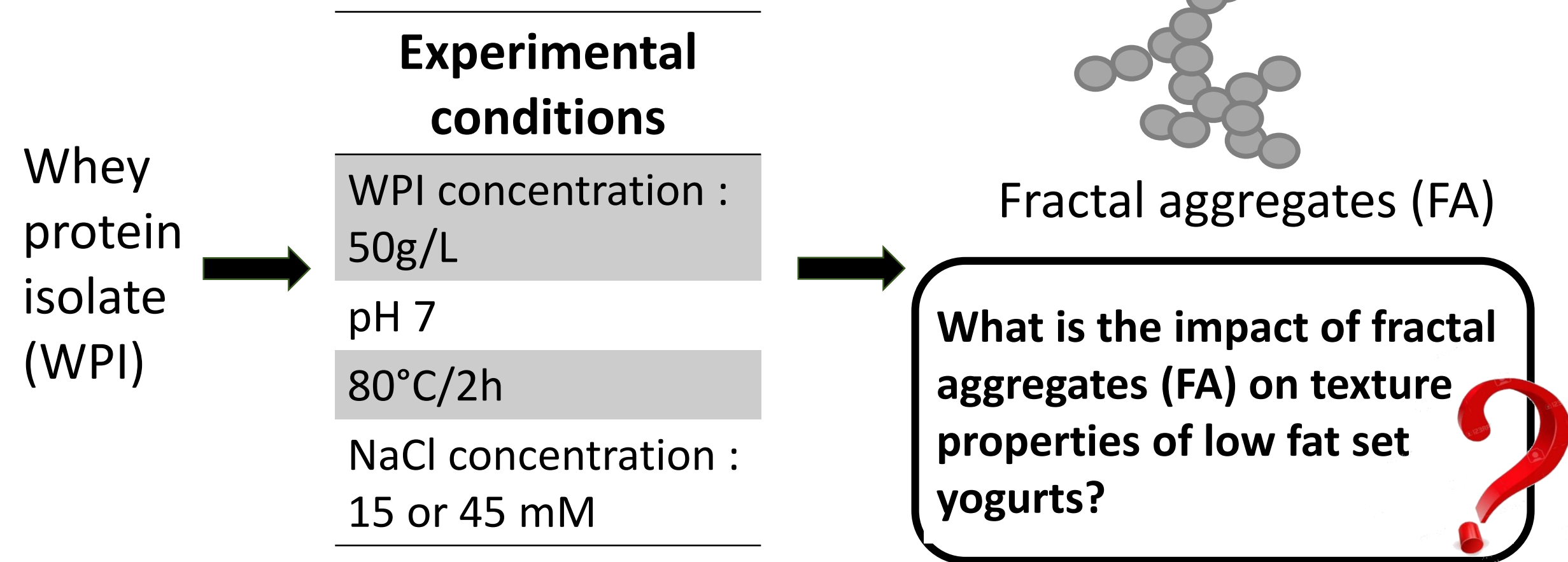
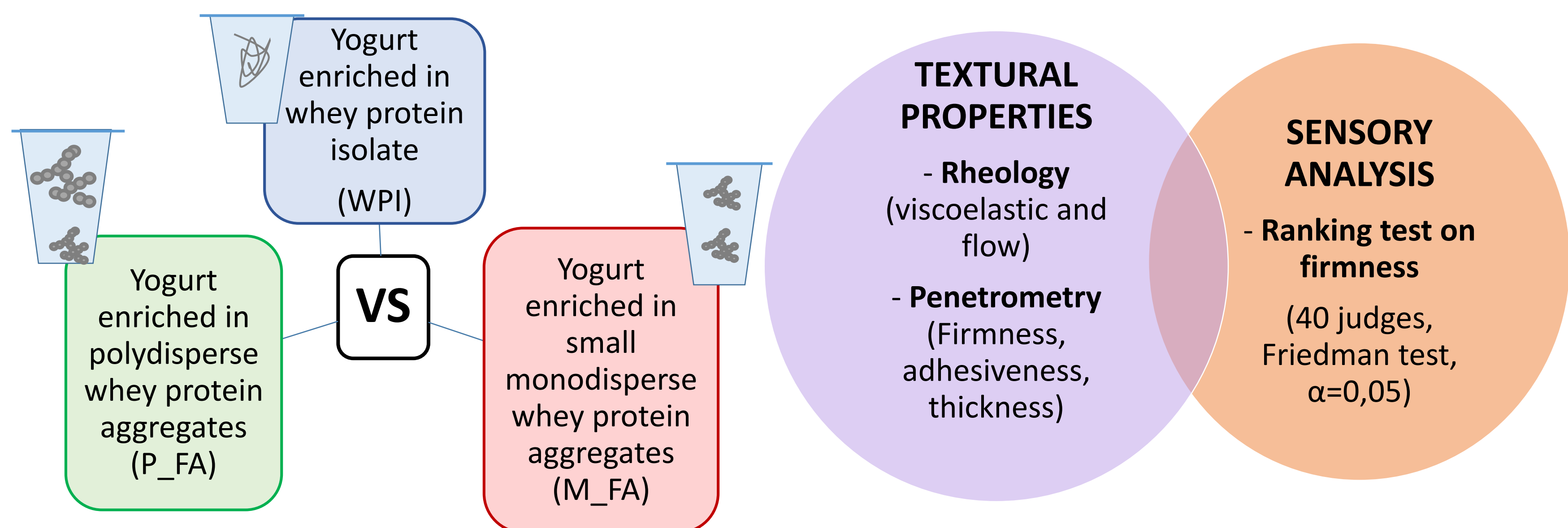


CONTEXT

Valorization of milk proteins (PROFIL 2013-2019) to promote their multifunctional properties



MATERIALS AND METHODS



RESULTS AND DISCUSSION

- **PCA on textural properties** (figure 1 and figure 2) :
 - The protein concentration is highly correlated with the rheological and textural properties (figure 1)
 - At the same concentration, the type of protein has an impact on the textural properties of yogurts (figure 2)
 - The addition of FA or WPI does not have an impact on syneresis (figure 1).
 - CLSM images illustrate the difference between the yogurts, showing a more opened structure of the protein network when P_FA are added (figure 2).
- **Sensory analysis** (figure 3) :
 - ↗ of protein concentration → ↗ of perceived firmness
 - Yogurts enriched in M_FA tends to be perceived as less firm than yogurts enriched in WPI

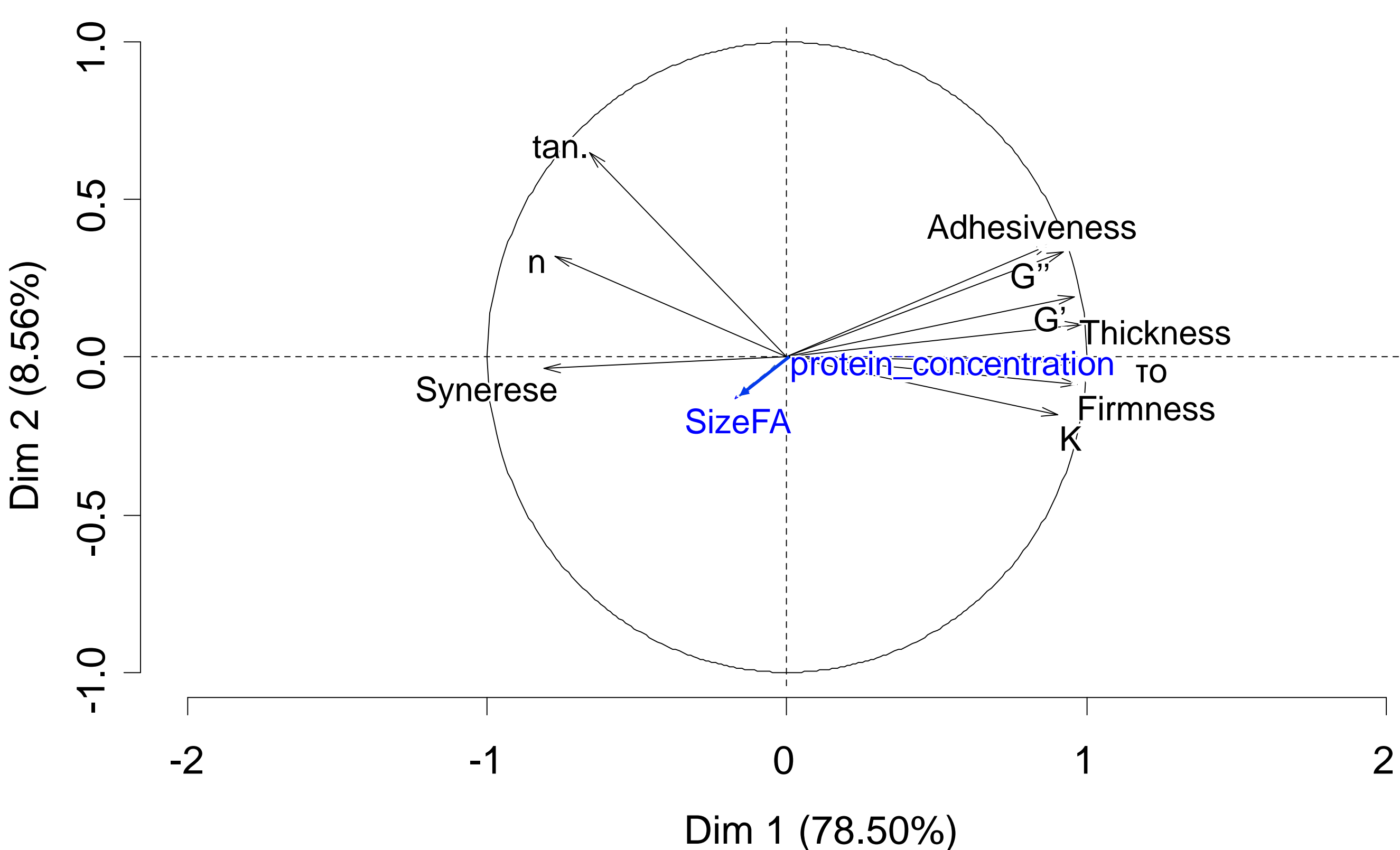


Figure 1 : Principal Component Analysis (PCA) of variables related to the textural properties of low-fat yogurts. (axes F1 and F2 : 82,74%). Blue = additional variables

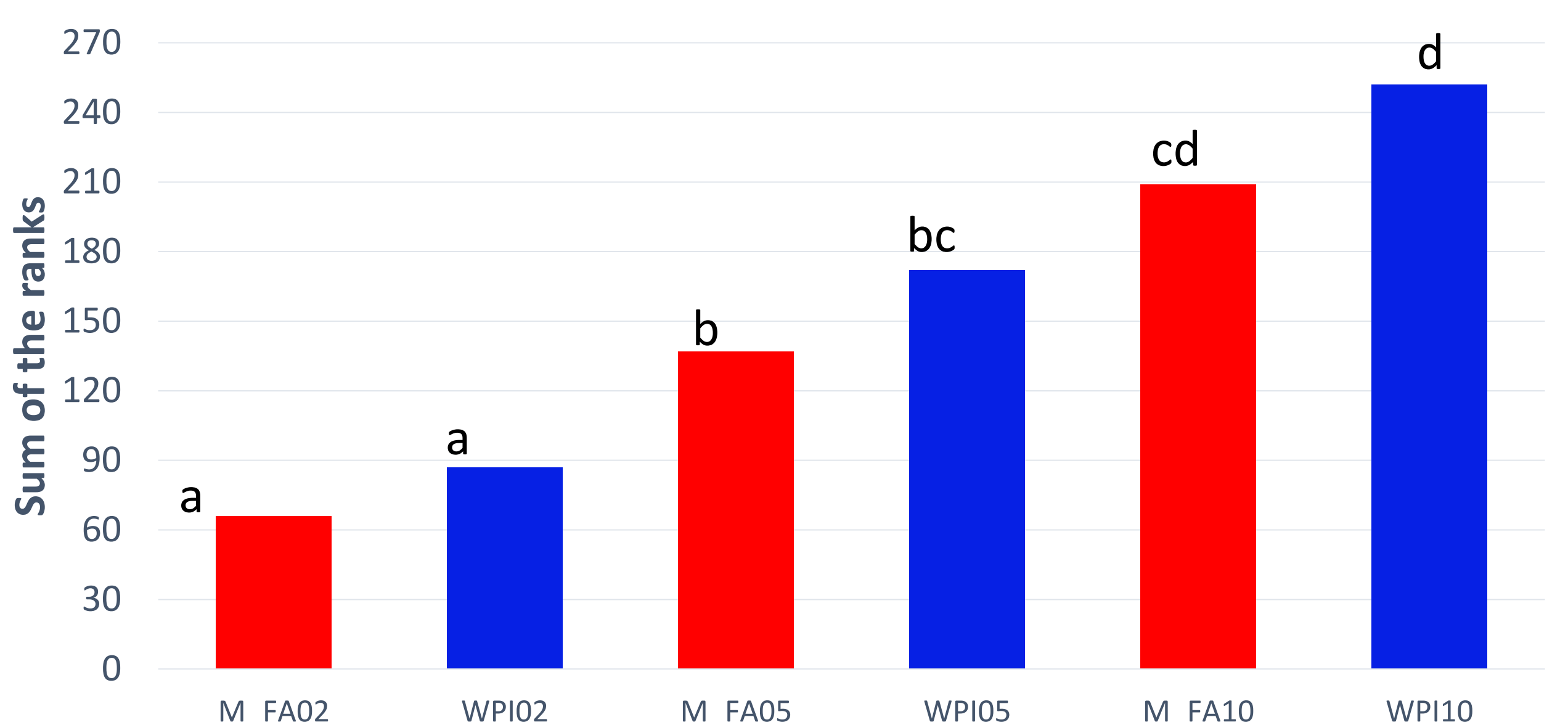


Figure 3 : Results of the ranking test on firmness of low-fat yogurts. Samples not sharing a common letter are significantly different ($P < 0,05$)

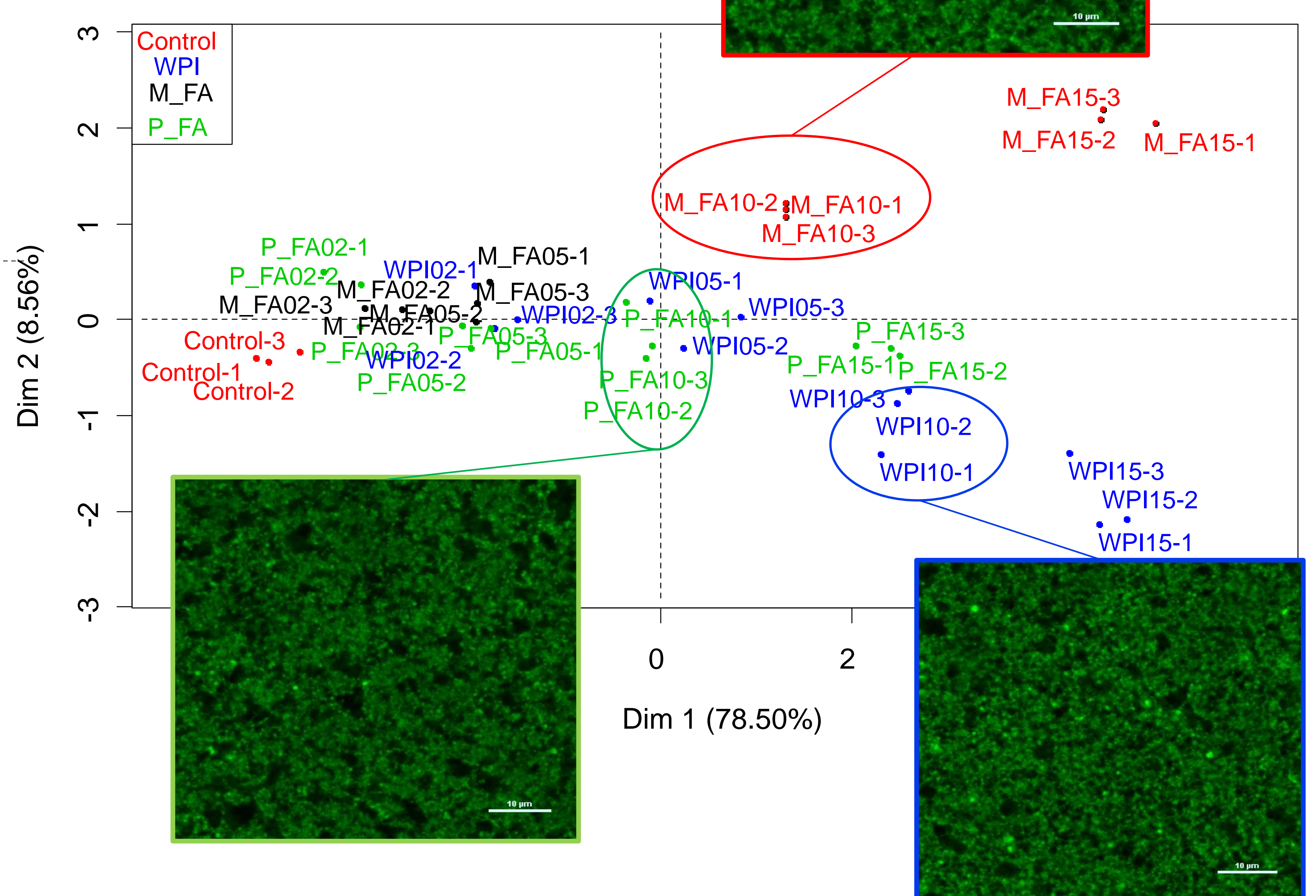


Figure 2 : Individuals factor map (PCA) combined with confocal laser scanning microscope (CLSM) images of the protein network of low-fat yogurts.

Putting the **Principal Component Analysis (PCA)** (figure 1) into perspective with the **sensory results** (figure 3) highlights the correlations between the textural properties of low-fat yogurts and the impact of the addition of WPI, M_WPA or P_WPA in different concentrations (from 0,2% to 1,5%).

CONCLUSIONS AND PERSPECTIVES

- Fractal aggregates can be used to modulate low fat set yogurt texture
- The impact of polydispersity of FA on the textural properties of yogurts can be explained by the different network structures
- There is a good correlation between the perception of firmness and the textural properties of the yogurts
- Descriptive sensory analysis will be conducted to characterize and quantify other texture attributes (smoothness, adhesiveness, thickness ...)
- Fractal aggregates could be interesting to produce high-protein yogurts while keeping a smooth texture