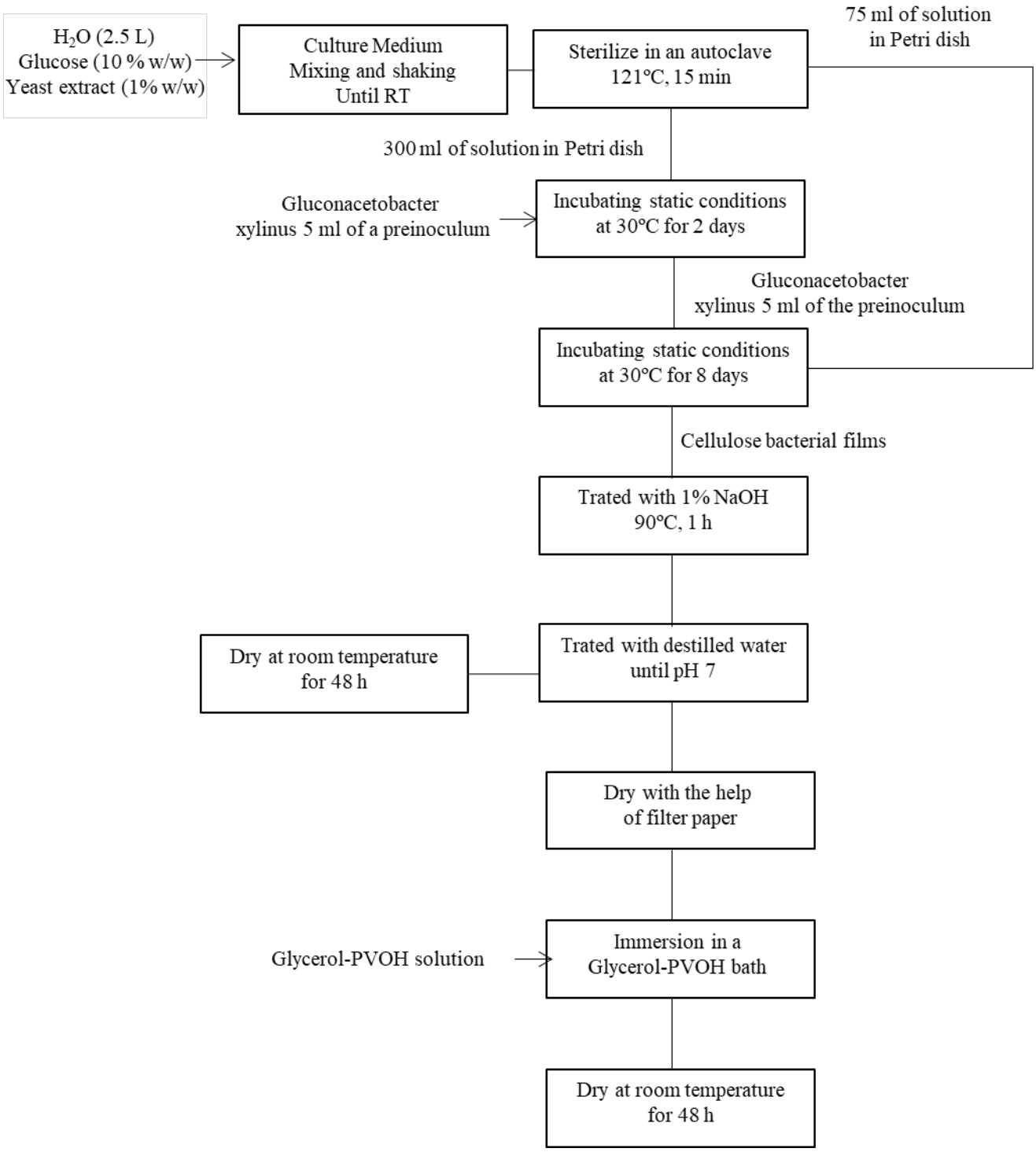


Fig. 1. Chart flow proposed for the manufacture of cellulose films with polyvinyl alcohol (PVOH) and glycerol.

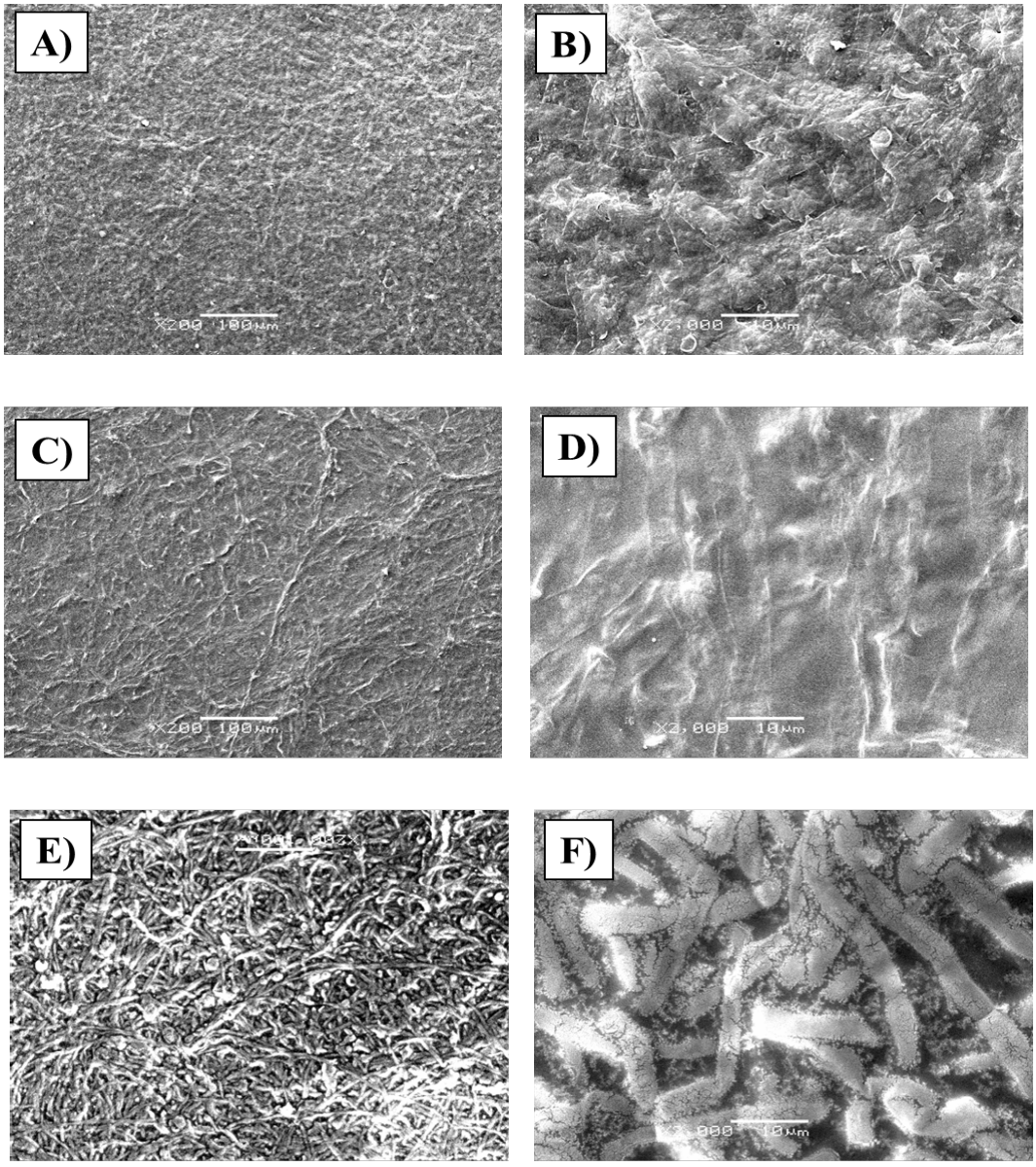


Fig. 2. Scanning electron microscopy of the top and bottom sides of the samples 1,3 and 7 of the bacterial cellulose based films, glycerol and polyvinyl alcohol films. A) Pure bacterial cellulose sample. B) Bacterial cellulose-polyvinyl alcohol 5% (w/w). C) Bacterial cellulose-glycerol 5% (w/w).

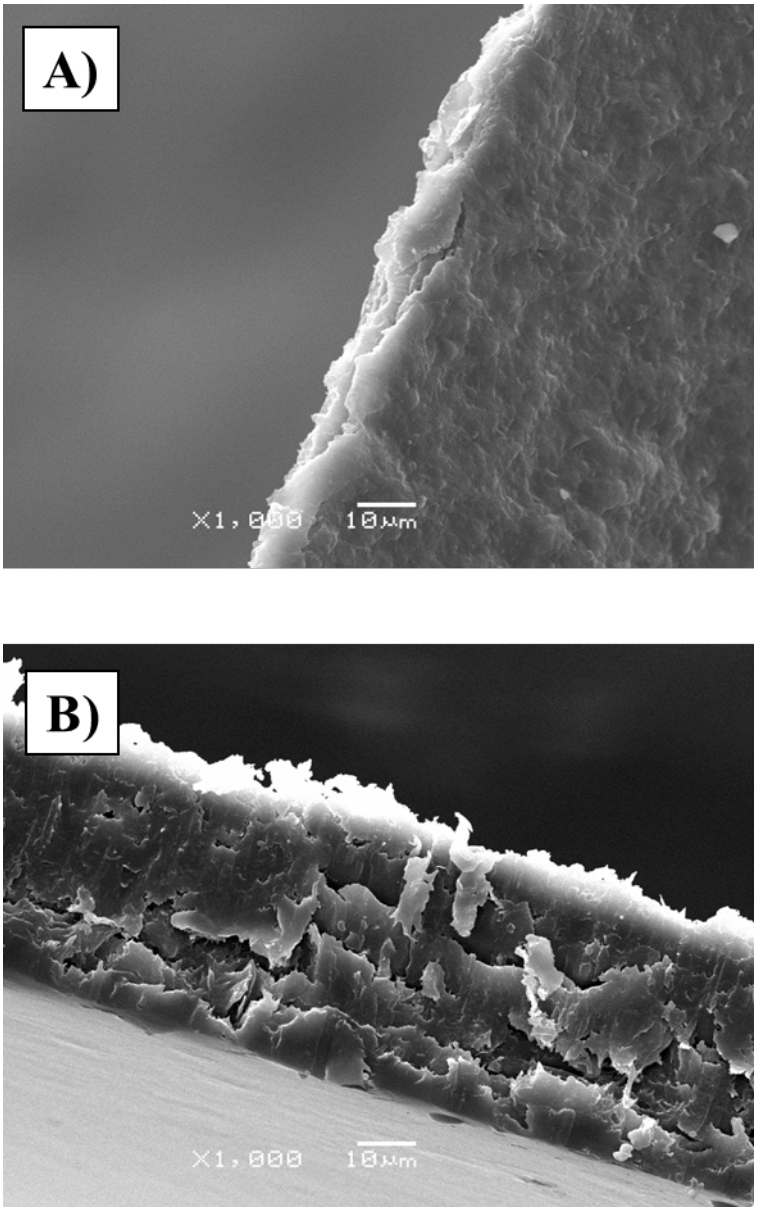


Fig. 3. Scanning electron microscopy of the cross section of the samples 1 and 3 of the bacterial cellulose based films, glycerol and polyvinyl alcohol films. A) Pure bacterial cellulose sample. B) Bacterial cellulose- polyvinyl alcohol 5% (w/w).

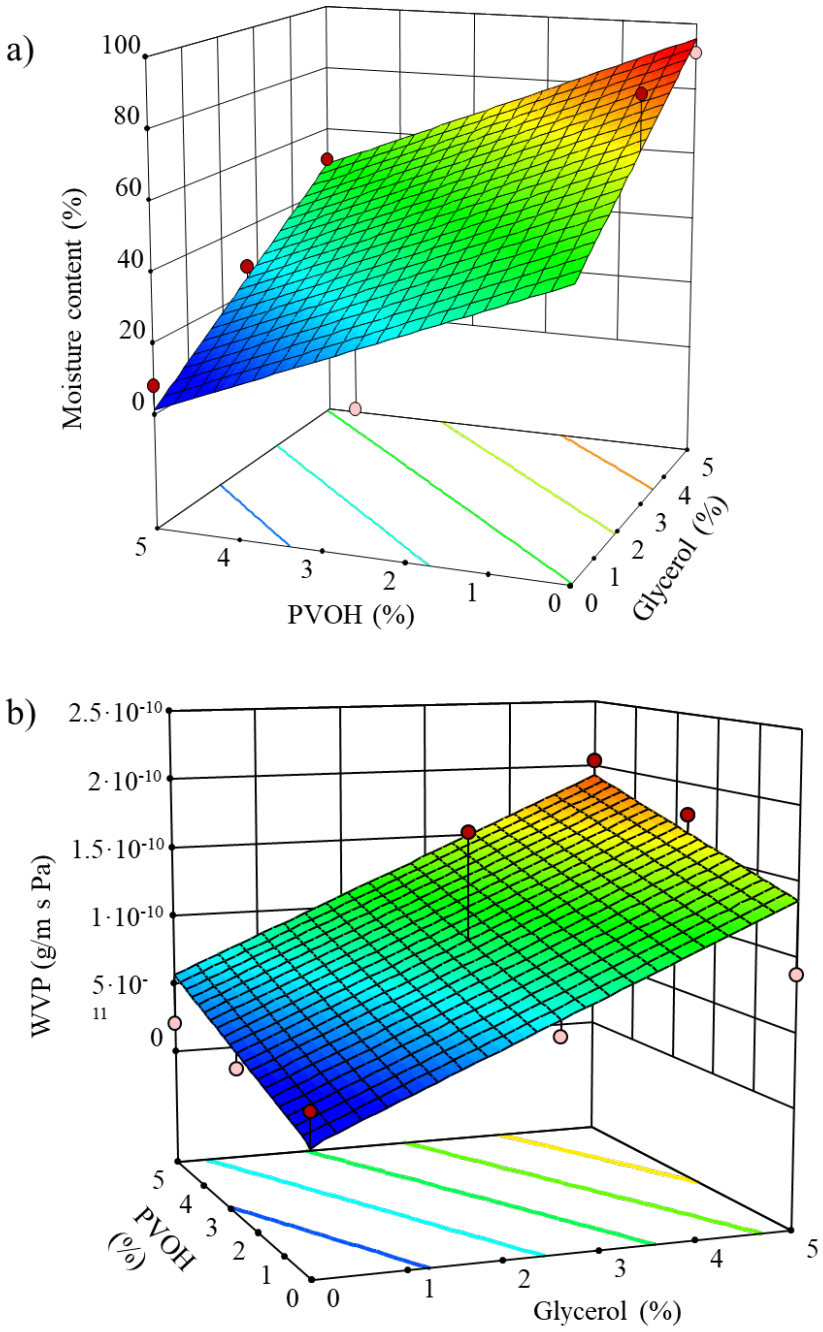


Fig 4. Prediction of the model for the effect of cellulose, glycerol and polyvinyl alcohol (PVOH) concentration on tensile strength (TS). A) Films with 2% (w/w) PVA; B) Films with 5% (w/w) PVA; C) Films with 10% (w/w) PVA.

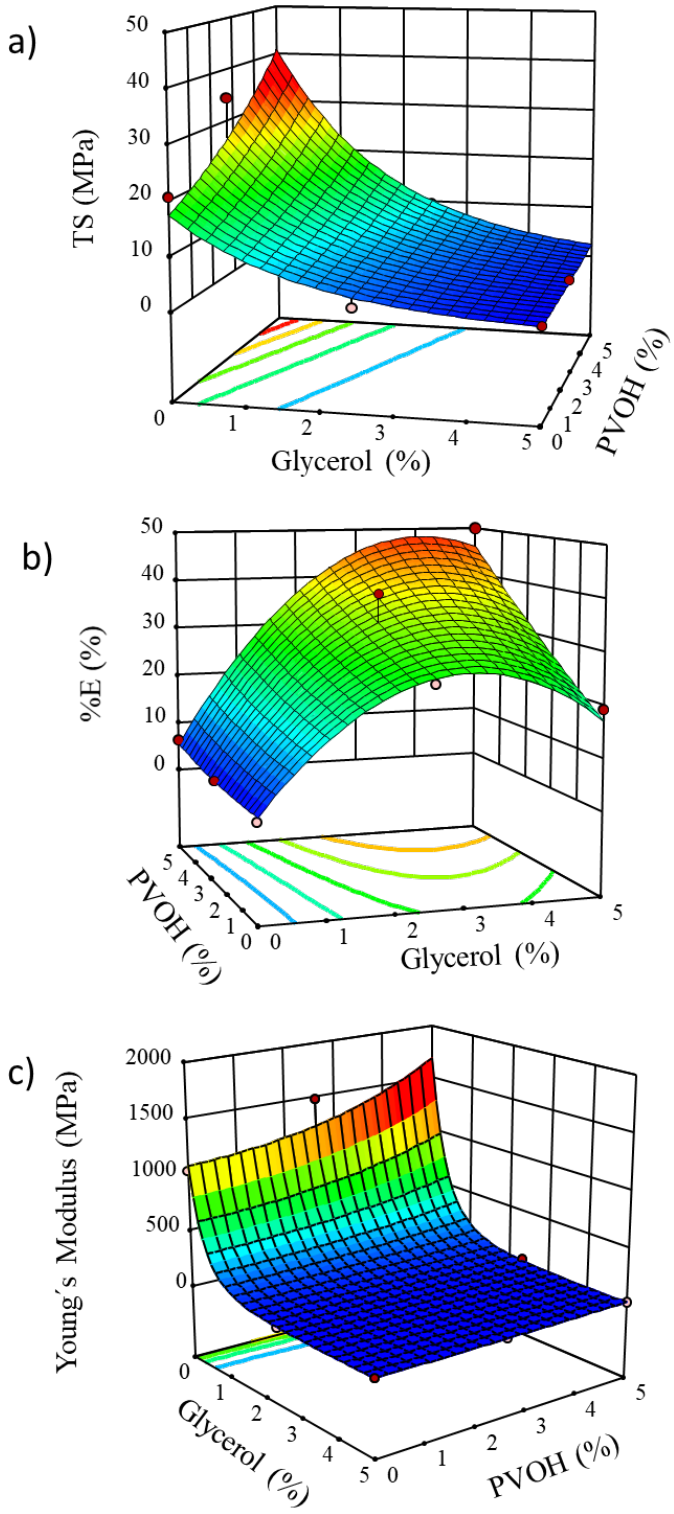
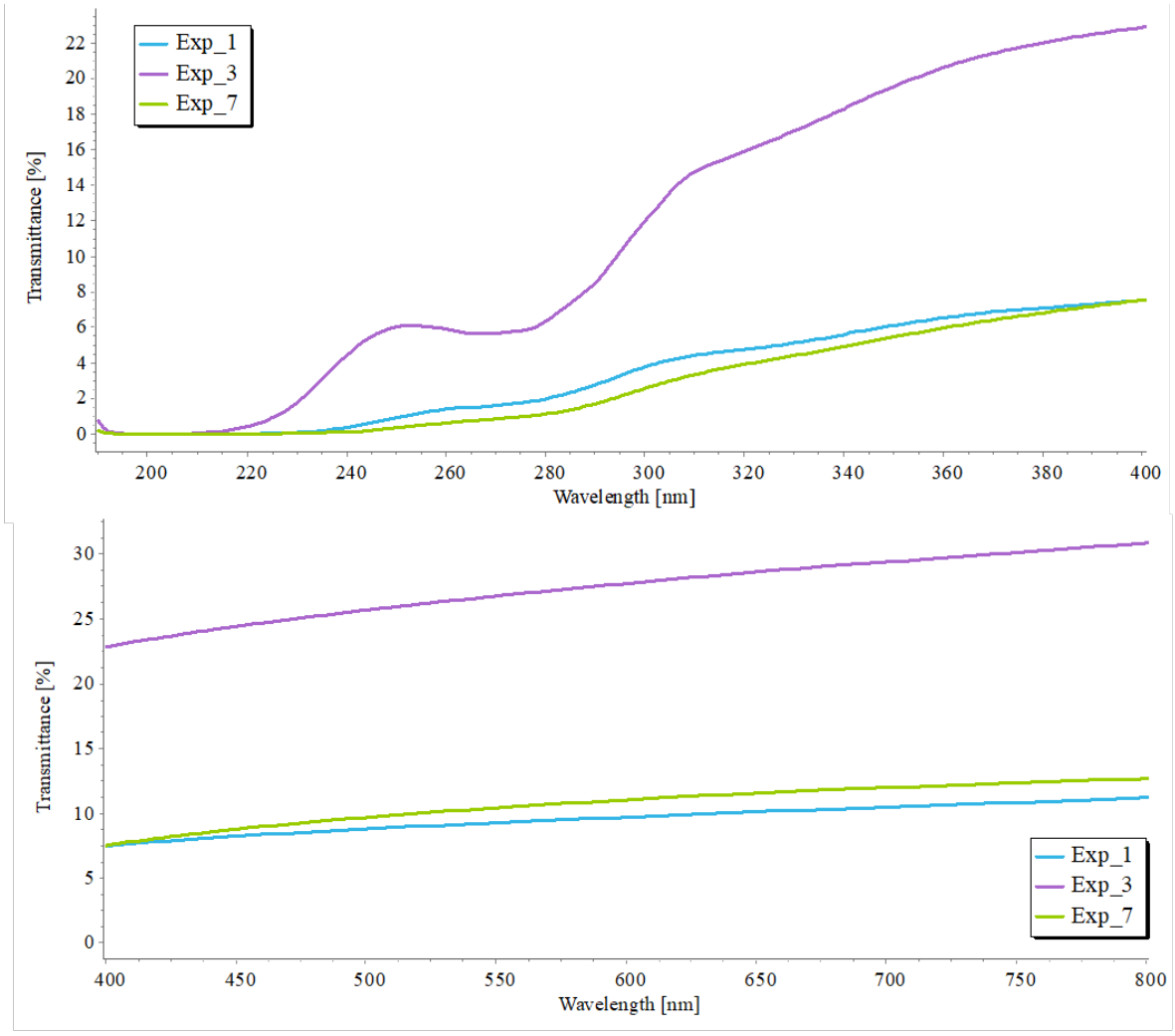


Fig. 5. Prediction of the model for the effect of cellulose, glycerol and polyvinyl alcohol (PVOH) on A) Tensile strength (TS), B) Percentage of elongation at break (%E) and C) Young's Modulus.



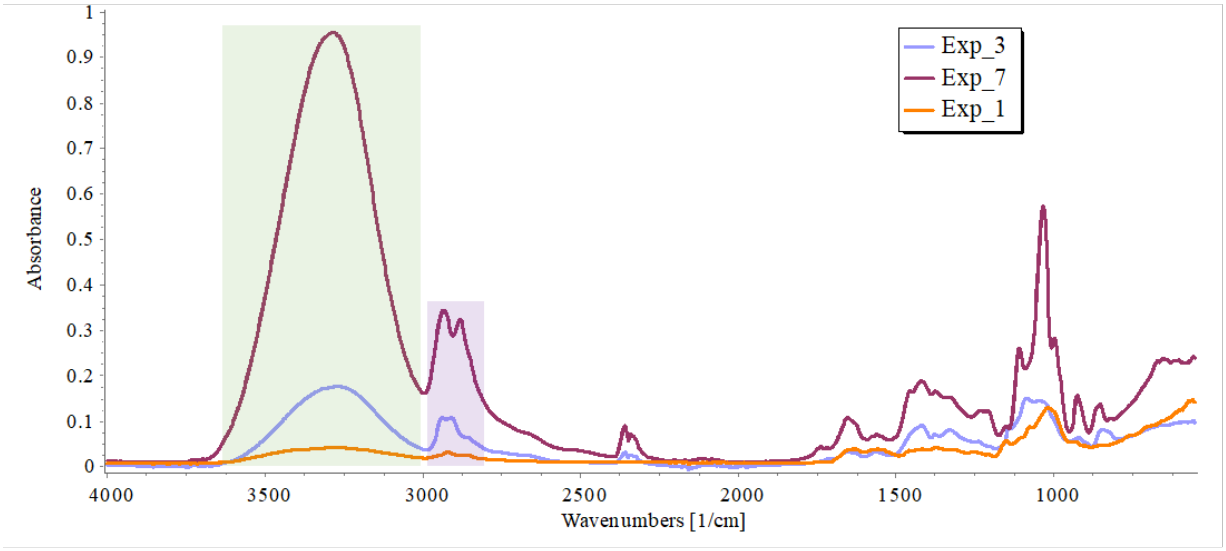


Fig 6. UV-VIS spectra profile and FT-IR spectra profile of selected films.

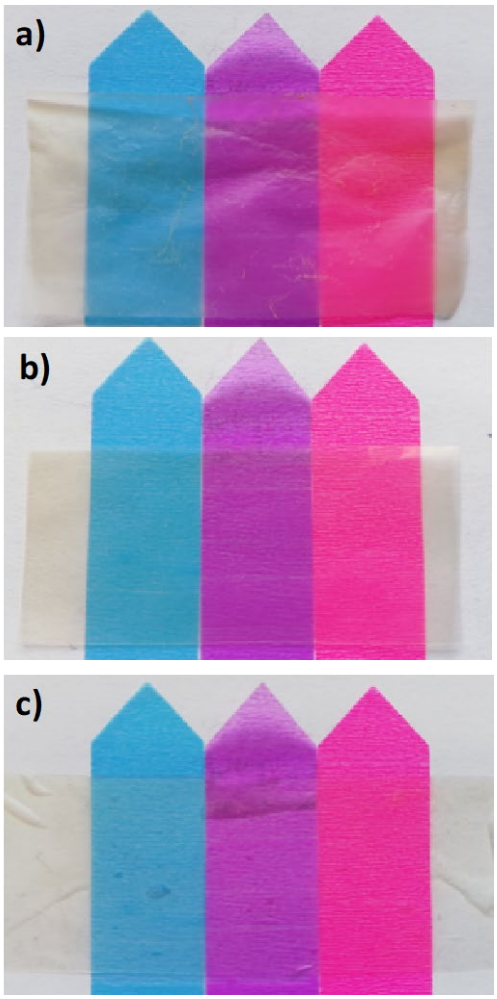


Fig. 7. Visual appearance of A) bacterial cellulose, B) bacterial cellulose-polyvinyl alcohol 5% (w/w) and C) bacterial cellulose-glycerol 5% (w/w).

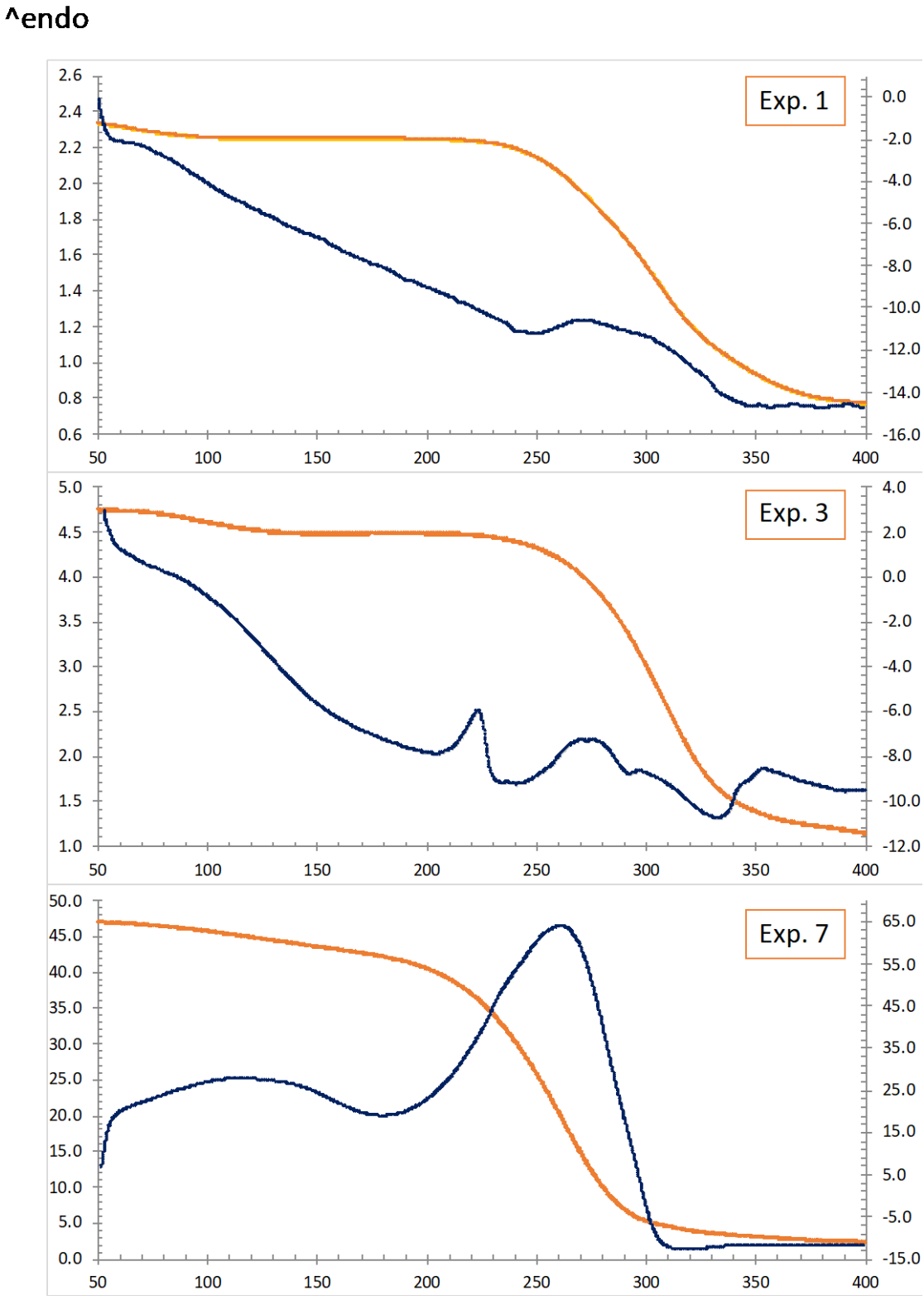


Fig. 8. Thermogravimetry and differential scanning calorimetry of selected films.