

## EDIBLE PROTEIN-BASED FOIL FOR PROLONGED FRESHNESS OF FRUITS AND VEGETABLES



1.

Protein films based on biopolymers for prolonged freshness of slices of fruits (pear) and vegetables (zucchini): edible, biodegradable, vegetarian and eco-friendly material.

2.

Gold and silver electrodes were compared.

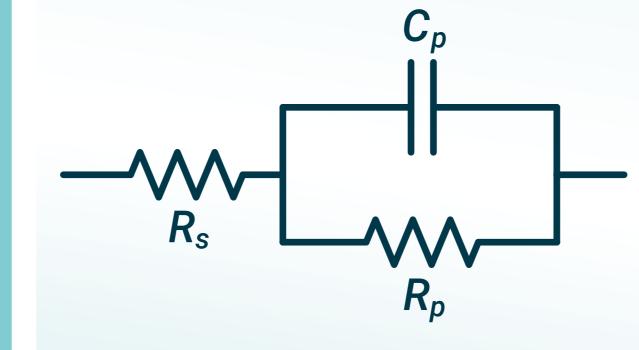
3.

Non-destructive method (Electrical impedance spectroscopy) used for characterization of freshness over time (3 hours).



An equivalent electrical circuit with physical interpretation of circuit elements was proposed and values of model parameters were correlated with fruits and vegetable ripening.

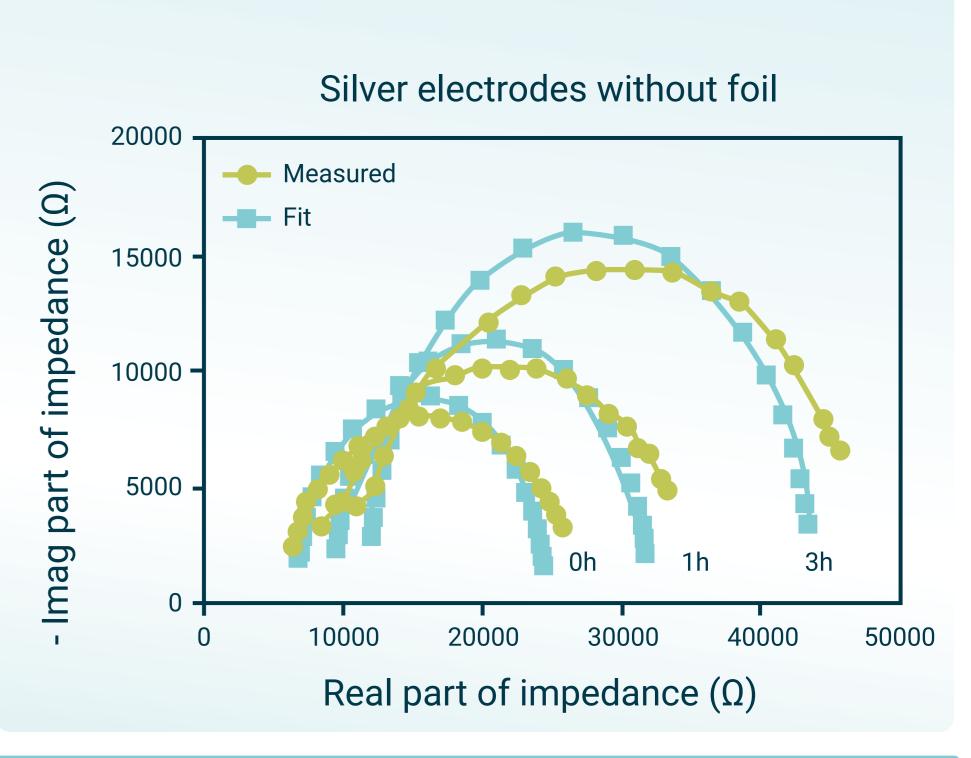






## Performance testing

• RMSE fitting errors lower than 7%



The use of our protein films reduced water evaporation recognized by smaller values of  $R_p$  and  $R_s$  when compared to the structure without film, while  $C_p$  was higher when the film was used.

Tijana Kojić, Mitar Simić, Milica Pojić, Goran M. Stojanović, "Detecting freshness of fruit and vegetable without and with edible proteinbased foil", IEEE Sensors Journal (IF2021=4.325), ISSN: 1530-437X, Vol. x, No. x, pp. x-x, 2022. (doi: 10.1109/JSEN.2022.3188388).