

Supplementary data

A Comprehensive Characterization of Biodegradable Edible Films Based on Potato Peel Starch Plasticized with Glycerol

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Table S1. Optimization design of potato peel starch with glycerol

| Run | Variable | | | Response |
|-----|------------------|------------|-----------------|----------------|
| | Temperature (°C) | Starch (%) | Plasticizer 9%) | Thickness (mm) |
| 1 | 60 | 4 | 30 | 0.08 |
| 2 | 70 | 5 | 35 | 0.1 |
| 3 | 50 | 5 | 35 | 0.1 |
| 4 | 60 | 4 | 30 | 0.09 |
| 5 | 60 | 4 | 30 | 0.09 |
| 6 | 60 | 4 | 21.591 | 0.08 |
| 7 | 70 | 5 | 25 | 0.1 |
| 8 | 60 | 4 | 30 | 0.09 |
| 9 | 60 | 4 | 30 | 0.09 |
| 10 | 70 | 3 | 25 | 0.05 |
| 11 | 70 | 3 | 35 | 0.06 |
| 12 | 50 | 5 | 25 | 0.1 |
| 13 | 60 | 5.68 | 30 | 0.11 |
| 14 | 76.82 | 4 | 30 | 0.09 |
| 15 | 60 | 2.3821 | 30 | 0.05 |
| 16 | 50 | 3 | 25 | 0.05 |
| 17 | 60 | 4 | 38.409 | 0.09 |
| 18 | 43.1821 | 4 | 30 | 0.09 |
| 19 | 50 | 3 | 35 | 0.06 |
| 20 | 60 | 4 | 30 | 0.09 |

Table S2. Response of optimization Design of potato peel starch with glycerol

| Response | Model | Regression | F-Model/Lack of fit | p Value model/lack of fit | Model/Lack of fit |
|---------------|--------|------------|---------------------|---------------------------|------------------------------|
| Thickness(mm) | Linear | 0.9364 | 78.48/1.38 | <0.0001/0.3808 | Significant/ not significant |

Table S3. Equation model suggestion for optimization design of potato peel starch with glycerol

| Response | Equation ¹ |
|----------------|--|
| Thickness (mm) | 0.0813–0.000009.985A+0.0193 B+0.0012 C |

¹A; Temperature; B: Starch; C: Plasticizer

Table S4. Point prediction from optimization design of potato peel starch with glycerol

| Temperature (°C) | Starch (%) | Plasticizer (%) | Thickness (mm) |
|---------------------|------------|-----------------|----------------|
| 51.986 | 4.48 | 26.52 | 0.096 |