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Fig. 1: Chemical structure of a) Copovidone, b) Kollicoat® MAE 30 DP, c) Eudragit® RL PO

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Fig. 2: Scanning electron microscopy images of spray-dried and freeze-dried lysozyme formulations.

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Fig. 3: FT-IR data for spray-dried and freeze-dried lysozyme samples 1800-900 cm-1

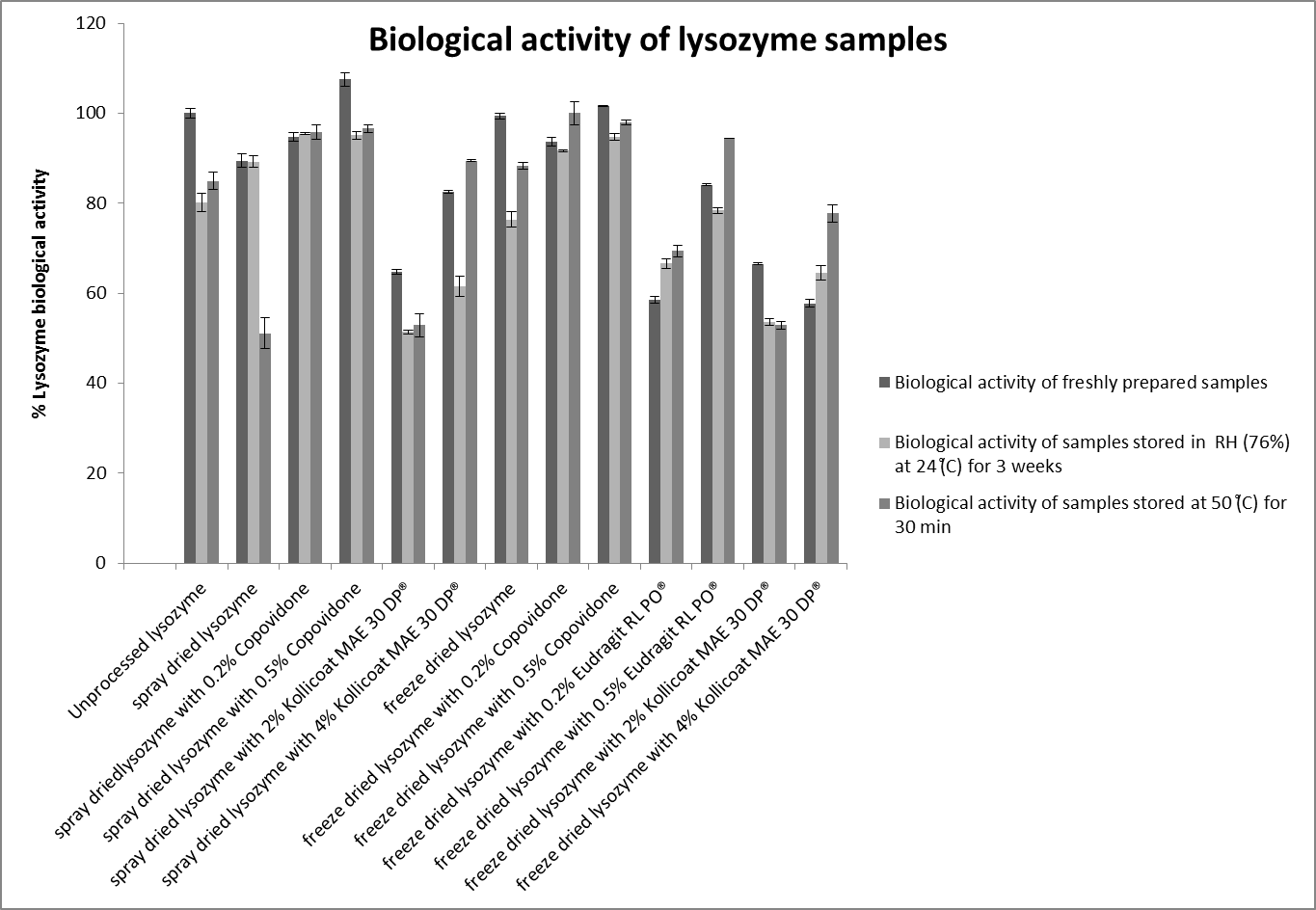
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Fig. 4: Biological activity percentage of protein samples pre- and post-storage; 3 weeks at 76% RH and 24 °C (solid forms) and at 50 °C for 30 min (liquid forms).

Table 1: % Yield results for spray-dried lysozyme

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| **Formulations** | **% yield of spray-dried lysozyme** |
| Spray-dried lysozyme | 65.5 |
| Spray-dried lysozyme with 0.2% Copovidone | 60.9 |
| Spray-dried lysozyme with 0.5% Copovidone | 61.7 |
| Spray-dried lysozyme with 2%Kollicoat® MAE 30 DP | 70 |
| Spray-dried lysozyme with 4%Kollicoat® MAE 30 DP | 71.4 |

Table 2: Apparent denaturation temperatures, *Tm*, of lysozyme samples as determined by Differential Scanning Calorimetry (DSC)

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| --- | --- |
| Formulations | Apparent Denaturation Temperature (*Tm*, °C) |
|
| Unprocessed lysozyme as received | 201.3 |
| Freeze dried Lysozyme 1% w/v | 199.9 |
| Freeze dried Lysozyme 1% w/v and Copovidone 0.2 %w/v | 192.2 |
| Freeze dried Lysozyme 1% w/v and Copovidone 0.5 %w/v | 181.7 |
| Lysozyme 1% w/v and Eudragit® RL PO 0.2 %w/v | 197.2 |
| Lysozyme 1% w/v and Eudragit® RL PO 0.5 %w/v | 199.4 |
| Lysozyme 1% w/v and Kollicoat® MAE 30 DP 4 %v/v | 192.6 |
| Lysozyme 1% w/v and Kollicoat® MAE 30 DP  2 %v/v | 193.6 |
| Spray dried Lysozyme 1% w/v | 200.1 |
| Spray dried Lysozyme 1% w/v and Copovidone 0.2 %w/v | 194.5 |
| Spray dried Lysozyme 1% w/v and Copovidone 0.5 %w/v | 185.4 |
| Spray dried Lysozyme 1% w/v and Kollicoat® MAE 30 DP 4 %v/v | 192.0 |
| Spray dried Lysozyme 1% w/v and Kollicoat® MAE 30 DP 2 %v/v | 195.8 |