果膠複合膜應用於食品活性包裝

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摘要

活性包裝是食品包裝發展中最具潛力的包裝技術之一，透過結合兩種或兩種以上組分的特性來增強薄膜的性能而受到更多關注。複合膜能夠攜帶生物活性化合物，抑制微生物的生長和氧氣的滲透，從而提高食品的保質期。果膠作為一種有吸引力的成膜材料已被廣泛應用於活性包裝。因此本文利用果膠與其他活性成分製作出複合包裝膜，並對其結構、物理及化學分析等來探討應用於食品包裝膜之潛力。以紅柚皮果膠(P)與酪蛋白(C)、蛋清蛋白(E)結合之複合膜，在 F4 (P:C:E=50:50:0) 和 F7 (P:C:E=50:25:25)薄膜具有較高的拉伸強度，整體而言，果膠的加入在機械、結構、複合薄膜的形貌和熱性能優於純酪蛋白膜和純蛋白膜。在花椰菜葉多酚(BLP)結合的木薯澱粉/果膠複合薄膜的研究當中，果膠可表現出良好的生物相容性，再加了花椰菜葉多酚能增強，並且在 3%的 BLP 萃取物表現出最佳的機械性能和阻隔性，形成緊密結構。使用食品加工副產品廢棄的果渣和紅毛丹皮萃取物(RPE)製備成複合膜進行了評估，添加的 RPE 增強了薄膜的拉伸能力和遮光能力，特別是含有 RPE 的薄膜完全阻擋了紫外線且抗氧化活性能力增加。綜合上述三篇文章顯示，果膠表現出良好的生物相容性，再加上其他活性成分能夠增強，未來能夠進一步研究以應用於實際食品系統。

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