

**Design and preparation of novel antioxidant and antibacterial films containing
procyanidins and phycocyanin for food packaging**

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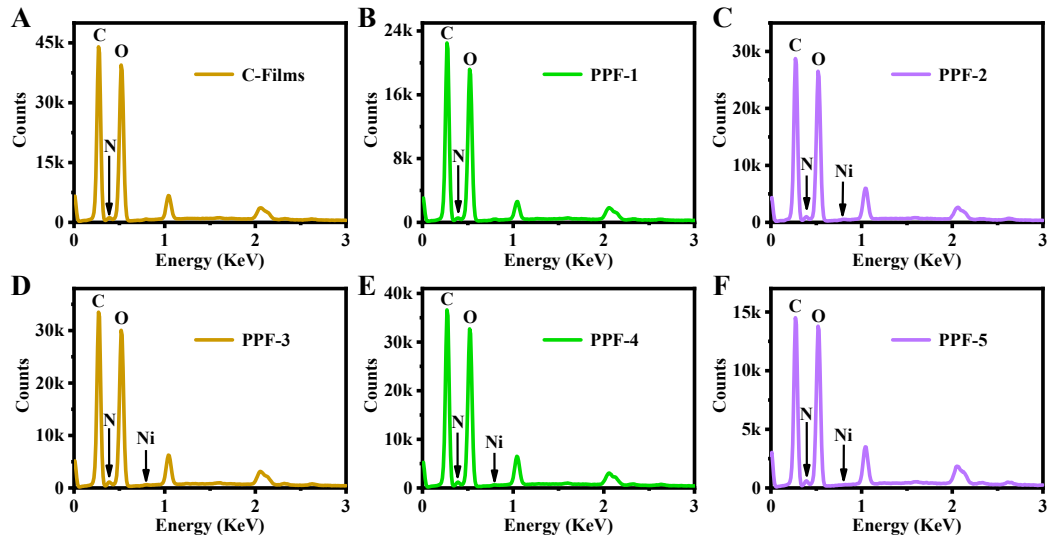


Fig. S1 EDS element analysis of (A) C-Film, (B) PPF-1, (C) PPF-2, (D) PPF-3, (E) PPF-4 and (F) PPF-5.

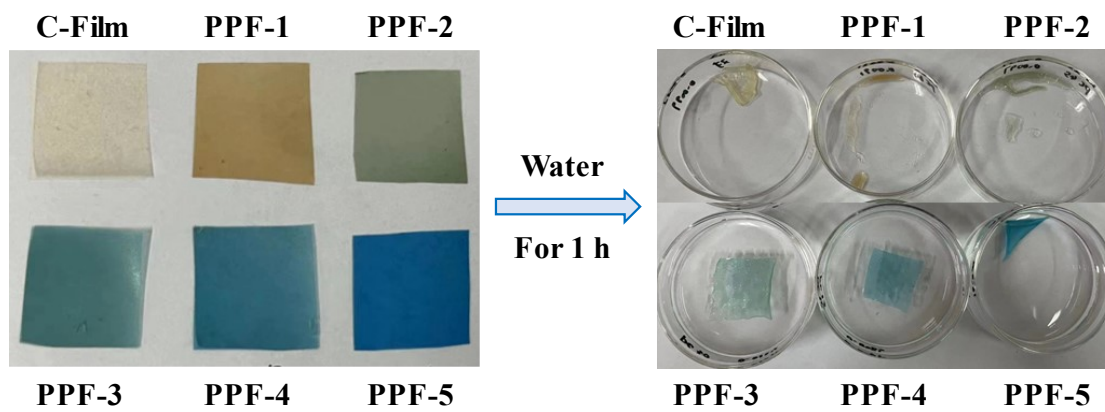


Fig. S2 Changes of the prepared films after immersing in water for 1 h.

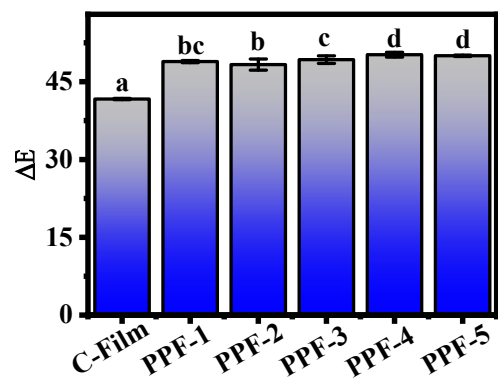


Fig. S3 Color parameters of ΔE in C-Film, PPF-1, PPF-2, PPF-3, PPF-4 and PPF-5 films.

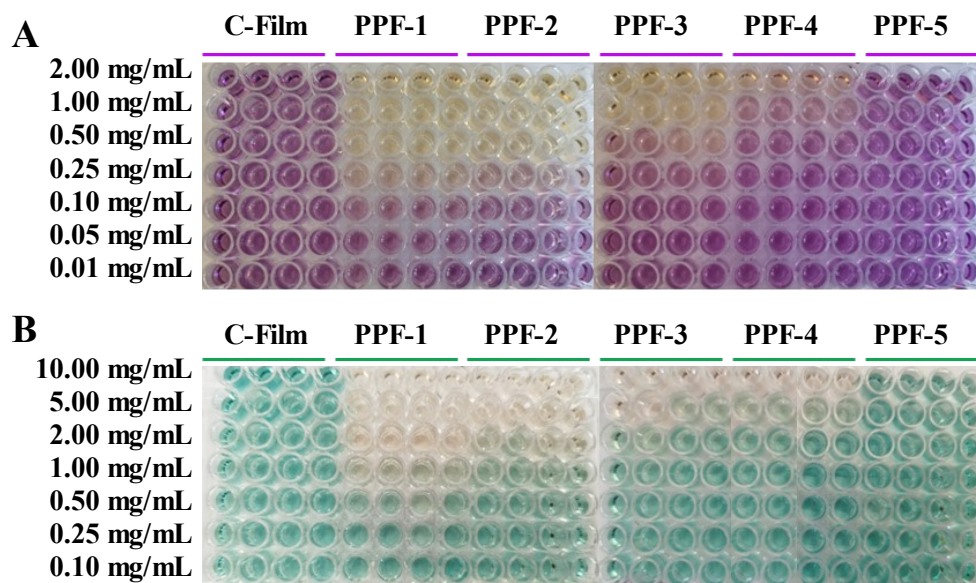


Fig. S4 The optical images of (A) DPPH and (B) ABTS radical scavenging ability of C-Film, PPF-1, PPF-2, PPF-3, PPF-4 and PPF-5.

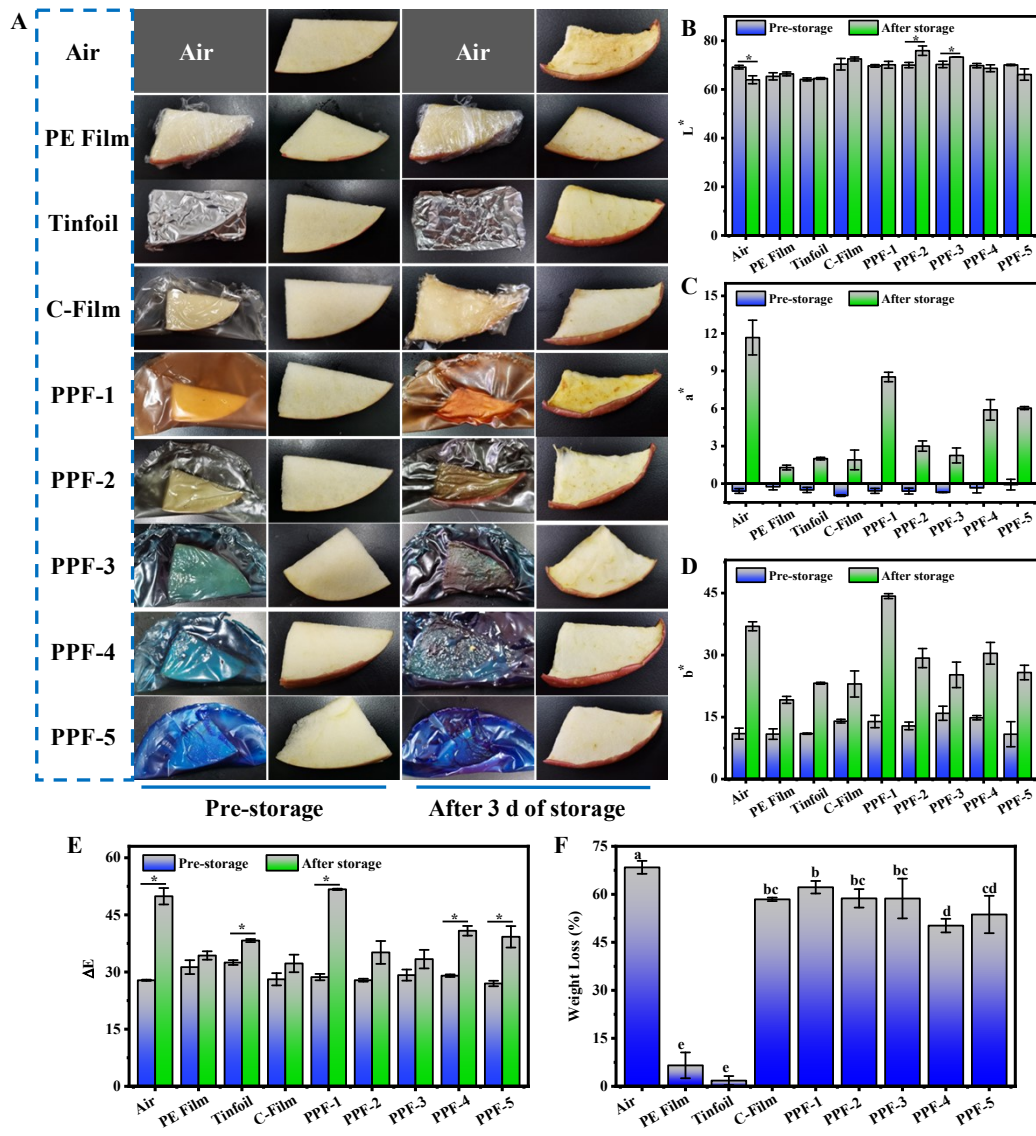


Fig. S5 (A) Appearance, color parameters included (B) L^* , (C) a^* , (D) b^* and (E) ΔE , and (F) weight changes of apples packed with different packaging materials after 3 d of storage.