

full-bloom stage can increase fruit weight, soluble solids content, and sugar-acid ratio while reducing total acidity; however, excessively high concentrations may significantly reduce fruit set, and therefore the application rate must be carefully controlled.

Management practices directly affecting the local fruit environment can also improve fruit quality. Insect- and rain-proof nets not only reduce pest damage and fruit cracking risks but also increase fruit diameter, single-fruit weight, edible rate, and sugar-acid ratio, showing better overall effects than open-field cultivation or insecticide application alone. These nets can also alter the bacterial community structure on fruit surfaces, reducing microbial groups associated with sugar consumption and disease, thereby favoring fruit growth and sugar accumulation (Yu et al., 2021). In addition, fruit bagging treatments can affect fruit quality by regulating light conditions, temperature, humidity, and pest pressure around the fruit. Using opaque bags during the young fruit stage reduces sugars, total flavonoids, vitamin C, and total anthocyanin contents while increasing acidity, resulting in poorer coloration and reduced fruit quality (Figure 2) (Yang et al., 2025). Therefore, Chinese bayberry bagging should balance light transmittance, ventilation, and protective effects.

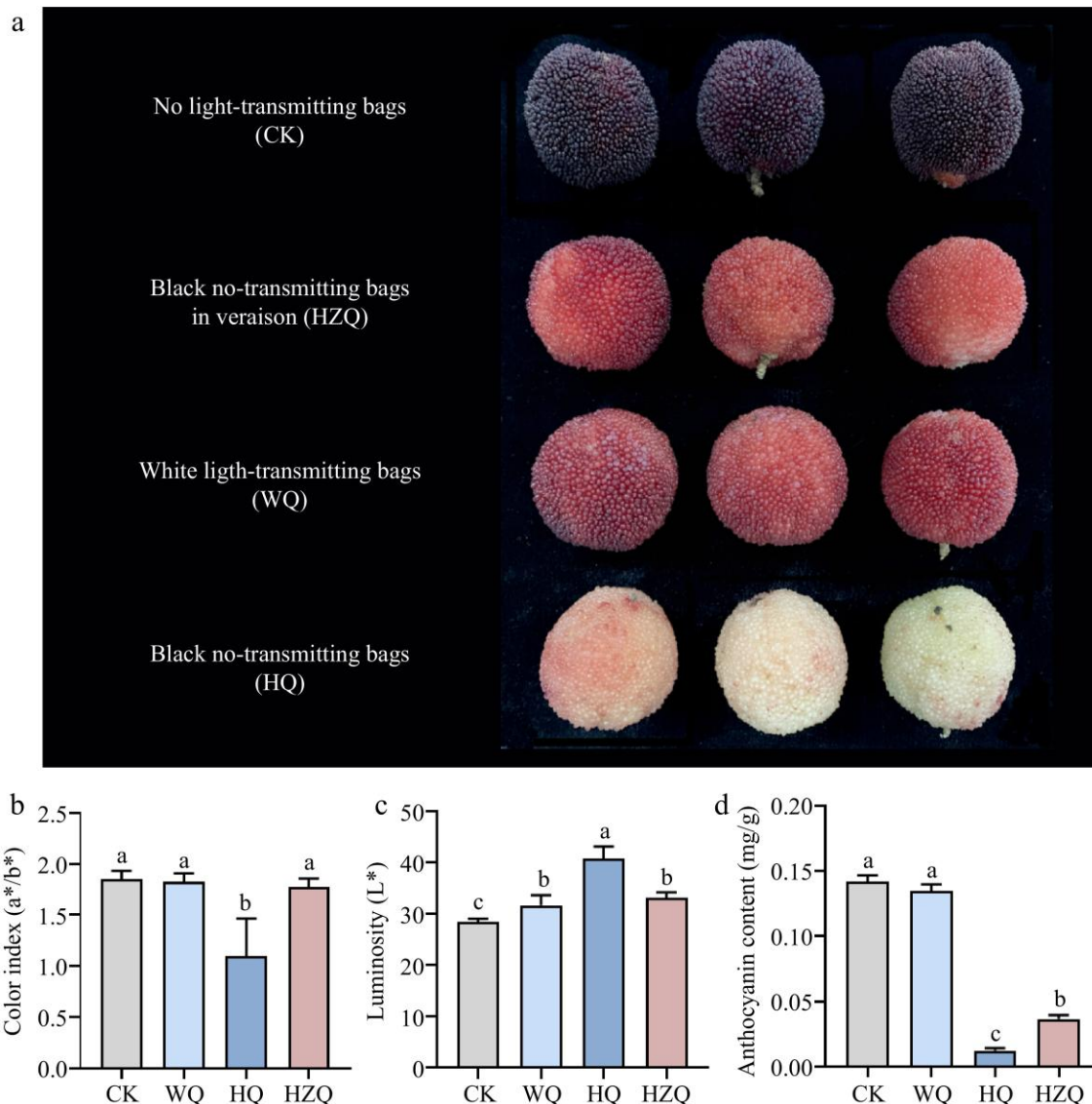


Figure 2 (a), (b) Effect of fruit color, (c) luminosity, and (d) anthocyanin in mature Chinese bayberry after treatment with different light-transmitting bags (Adopted from Yang et al., 2025)

Image caption: Bars represent the mean and standard error of three independently transformed biological replicates (n = 3). Different letters indicate statistically significant difference in one-way ANOVA analysis ( $p < 0.05$ ); HQ: Blank-no-transmitting bag treatment; WQ: white-light treatment (Adopted from Yang et al., 2025)