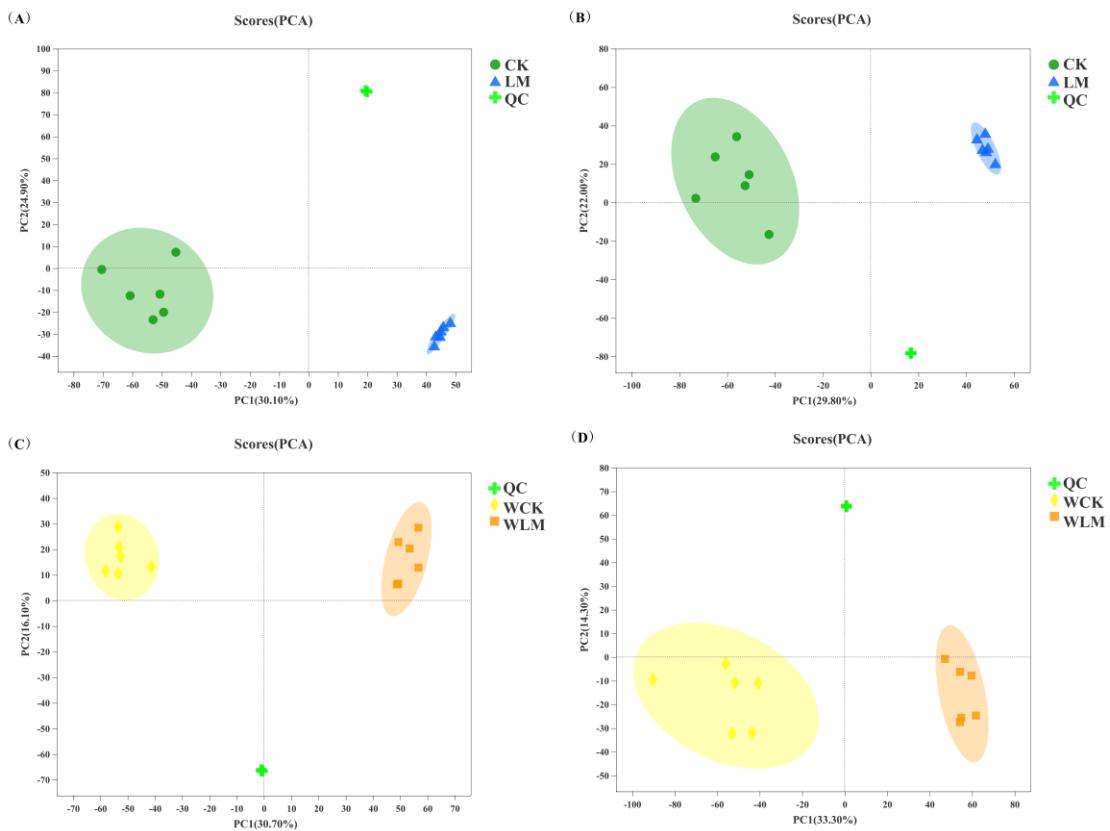


**Figure S1.** Principal component analysis (PCA) of metabolic profiles in S1 group (A) and S2 group (B) silage inoculated without (red circle) or with additives (blue triangle) ( $n = 6$ ). CK, mixed with canola straw without additives; LM, ensiled with additives; WCK, wilted for 8 h without additives; WLM, wilted for 8 h ensiled with additives.



**Figure S2.** Principal component analysis (PCA) of metabolic profiles in S1 (pos: A, neg: B) and S2 (pos: C, neg: D) silage without (control) or with additives ( $n = 6$ ). CK, mixed with canola straw without additives; LM, ensiled with additives; WCK, wilted for 8 h without additives; WLM, wilted for 8 h ensiled with additives.