1. **Rationale for conducting the systematic review.**

Soil is the foundation for tea tree cultivation. In recent years, the soil acidification of tea plantations has become increasingly severe. About 46% of tea plantations in China have soil pH lower than 4.5. After acidification, soil structure deteriorates, nutrient loss is severe, the availability of heavy metals is increased, beneficial microorganisms in tea rhizosphere soil are reduced, and pathogenic bacteria are increased, resulting in soil microecosystem imbalance, which leads to the reduction of soil nutrient cycling ability, and the tea tree's ability to absorb soil nutrients is reduced, affecting the growth of tea trees and reducing tea quality. The problem of soil acidification in tea plantations has become a limiting factor for the sustainable development of tea plantations in China. Therefore, strengthening soil management in tea plantations and effectively controlling soil acidification in tea plantations is of great significance to ensure the sustainable development of tea plantations. Therefore, we conducted a meta-analysis to investigate the correlation between different soil improvement materials and tea plantations soil pH in recent years and its influencing factors.

1. **The contribution that it makes to knowledge in light of previously published related reports, including other meta-analyses and systematic reviews.**

Gao et al reported the effects of biochar on soil pH and Li et al reported the effects of lime on soil pH, but they only focused on studies of one of the amendments. Thus, this study expands on previous manuscripts and performs a comprehensive systematic review with meta-analysis and meta-regression models aiming to explore the effect of different amendments on soil pH in tea plantations.