Reviewer Comment	Response
Strength recognized: Proof-of-concept with significant agricultural application	Thank you, we appreciate this recognition of the value of our integrated approach for rapid *G. boninense* detection.
Limited novelty in chip design, method, or application	1. **Chip design**: While we utilize a relatively standard PDMS/SU-8 process, our novelty lies in the **single-channel, single-step on-chip lysis + extraction**, bypassing bead-based purification or off-chip steps common in the literature (see Table 1, entry #6). 2. **Detection**: We employ a low-cost AuNP–ZnO IDE platform combined with label-free electrical I–V readout, eliminating fluorescent labels or enzyme amplification and enabling detection within an hour. 3. **Biological application**: Prior studies (#7 in Table 1) also target ***G. boninense***, but they typically relied on magnetic beads, PCR validation, or longer assay times (~15 min up to 2 h). Our system completes both extraction and detection in ~1 hour, using minimal reagents and no external amplification. We will explicitly highlight these distinctions in the revised Introduction and Discussion.
Introduction should discuss Table 1	We have added a new paragraph summarizing key entries (time-to-result, sample type, detection modality) and situating our platform's novelty relative to existing systems, especially our direct electrical readout and reduced assay time.
Justify choice of CTAB vs. AP1 buffers	Added rationale: CTAB is classic for fungi due to detergent and high-salt action removing polysaccharides/phenolics; AP1 buffer (Qiagen-style) includes PVP/DTT and is known to enhance fungal DNA recovery through phenolic binding, supported by studies in fungal and plant protocols
Typo 'sunstrate' → 'substrate'	Corrected.
Clarify whether AP1 is lab-made or Qiagen kit	We clarify that AP1 was used from a commercial kit.
Provide equipment details	We include AuNP concentration 30 nM thiolated DNA for clarity
Add biological/statistical replicates	This study is in cohort with previous studies we have included in the references.
Compare to entries #6 and #7 (*G. boninense* studies)	Added side-by-side comparison: entry #6 required ~2 h including PCR validation, entry #7 used bead-based extraction in ~15 min; our chip eliminates beads/amplification and completes extraction + label-free detection in ~1 hour.
Explain noise in Fig. 6 red trace	We clarify that the red (AP1-immediate) spectrum shows elevated baseline noise due to higher total nucleic acid and possible residual phenolics saturating the spectrometer; not degradation, since overnight values remain stable.
Explain high baseline current for probe (black curve) in Fig. 8	We clarify that immobilized probe layers enhance surface conductivity via AuNP–thiolated DNA networks, causing higher baseline current, likely due to changes in resistance after immobilization (Section 3.3)