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## ACCEPTED MANUSCRIPT

# A nanocomposite-based biosensor for bovine haptoglobin on a 3D

### paper-based analytical device

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#### Highlights

- We developed a nanocomposite-based biosensor for the detection of bovine haptoglobin.
- Assay was performed on an inexpensive, paper-based analytical device.
- Biosensor had a detection limit of  $28 \mu g/mL$  and a linear range from 0.01 to 0.9 mg/mL.
- Biosensor was evaluated and applied for determination of serum haptoglobin.
- The biosensor presents great potential for on-farm diagnosis of haptoglobin related disease.

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