

ORIGINAL ARTICLE

Performance Evaluation of the Newly Developed H-120 HbA_{1c} Analyzer

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SUMMARY

Background: The aim of this study is to evaluate the analytical performance of Mindray H-120, a newly developed and launched Hemoglobin A_{1c} (HbA_{1c}) analyzer that is based on ion-exchange high-performance liquid chromatography (HPLC).

Methods: In both standard and variant modes of the H-120 analyzer, precision, accuracy, linearity, and potential interference from Hb variants were assessed. In addition, the consistency of results between the H-120 analyzer and other commonly used analyzers was evaluated.

Results: The H-120 analyzer showed excellent precision and accuracy. The coefficients of variation (CVs) of repeatability and reproducibility were not greater than 0.5%. The H-120 analyzer provided results that were consistent with IFCC-assigned external quality control samples with a bias of $\pm 2.0\%$. The HbA_{1c} level showed a good linear relationship between 3.0% and 20.1%. The results from the standard and variant modes for the H-120 analyzer were in perfect agreement ($r = 1.000$), and the HbA_{1c} results showed a high level of consistency ($r \geq 0.998$) when comparing the H-120 with the other two analyzers, D100 and Capillarys 3 TERA. The H-120 analyzer can detect nine of the ten most common Hb variants, and 83.8% of the variant samples do not affect HbA_{1c} measurements.

Conclusions: The H-120 analyzer offers outstanding fundamental performance, robust variant detection capabilities, and user-friendly, efficient operation, making it suitable for the requirements of clinical laboratories. (Clin. Lab. 2026;72:1-5. DOI: 10.7754/Clin.Lab.2025.250530)

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Supplementary Data

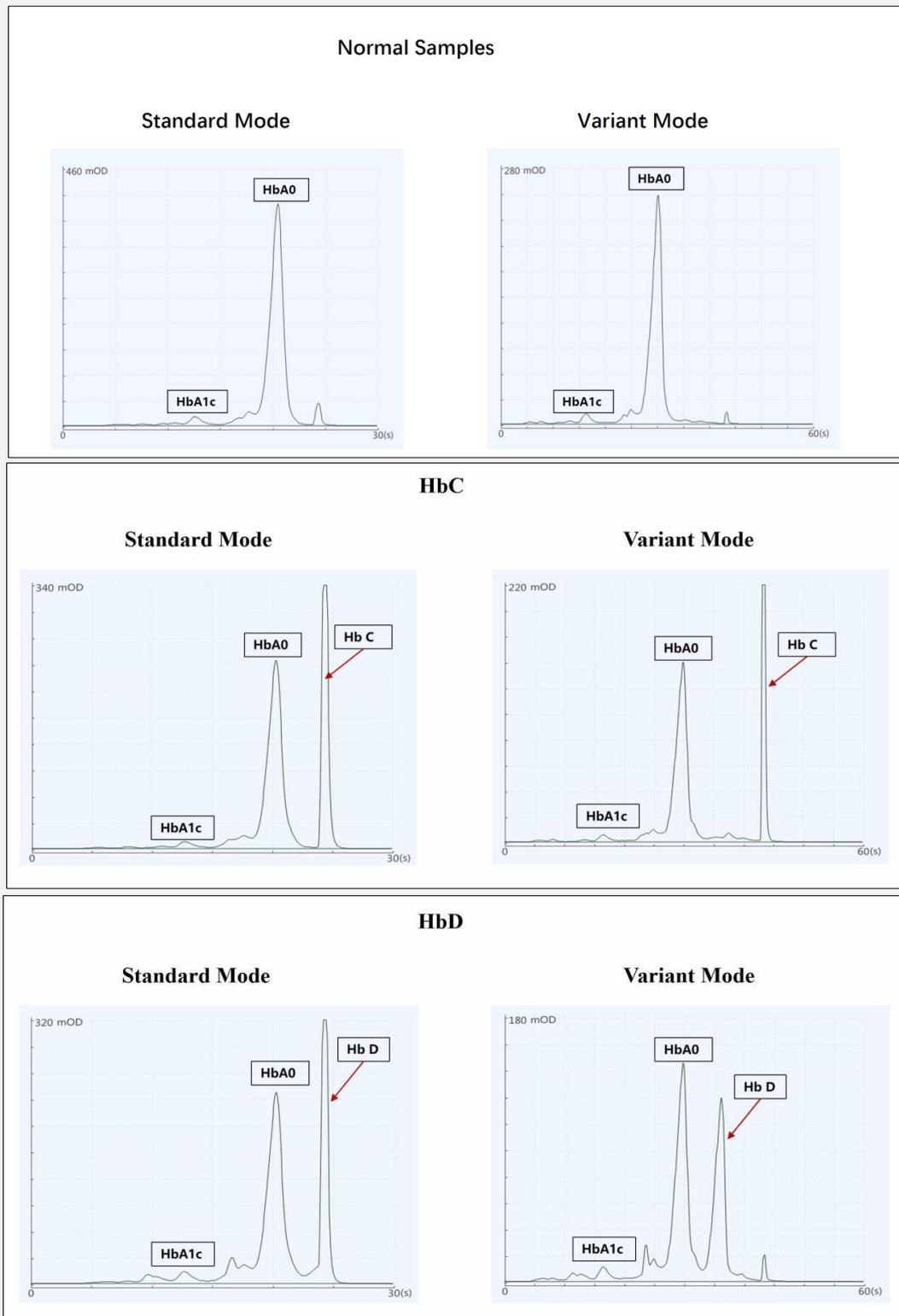


Figure S1. Chromatograms of the Hb variants provided by the H-120 analyzer.

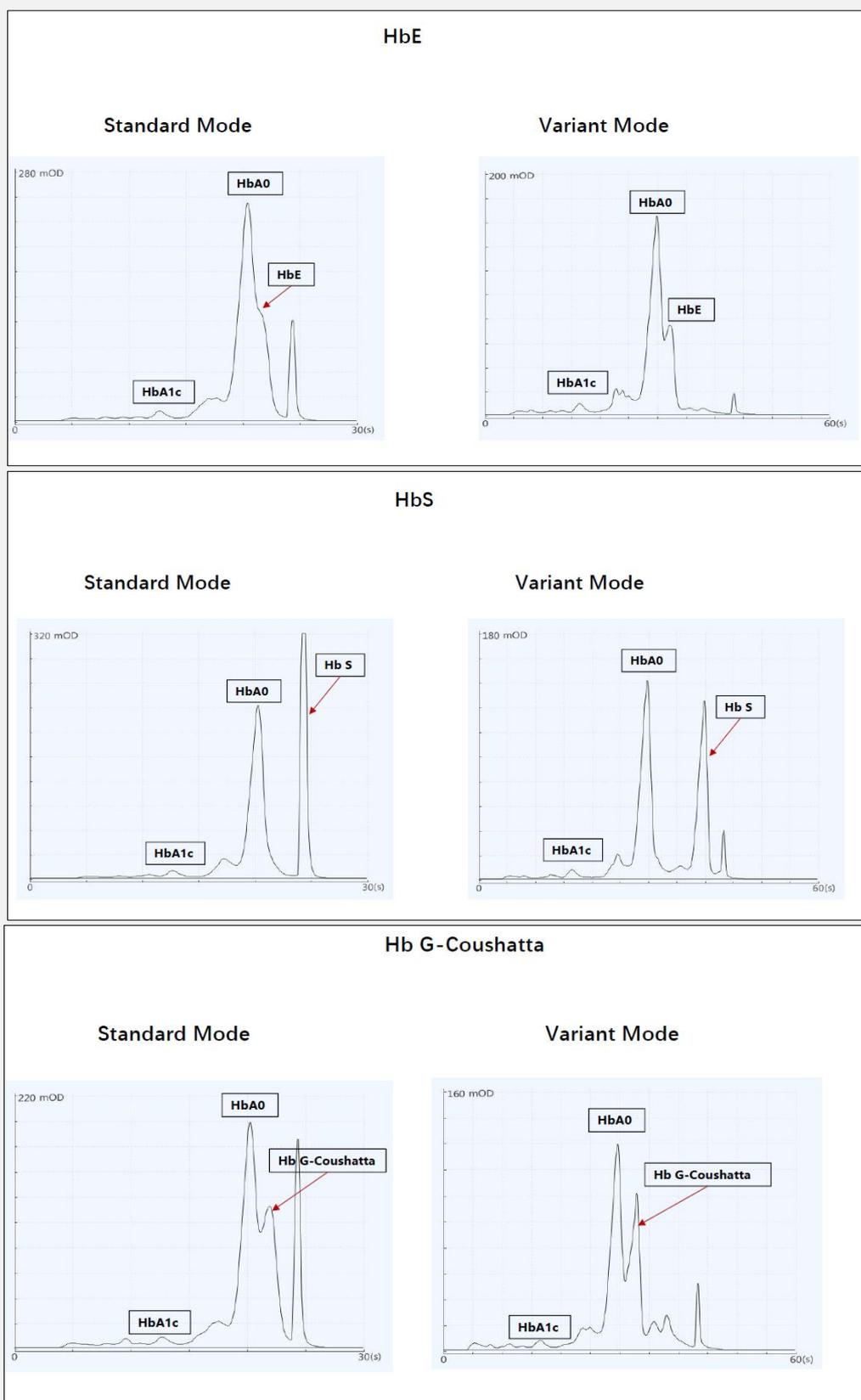


Figure S1. Chromatograms of the Hb variants provided by the H-120 analyzer (continued).

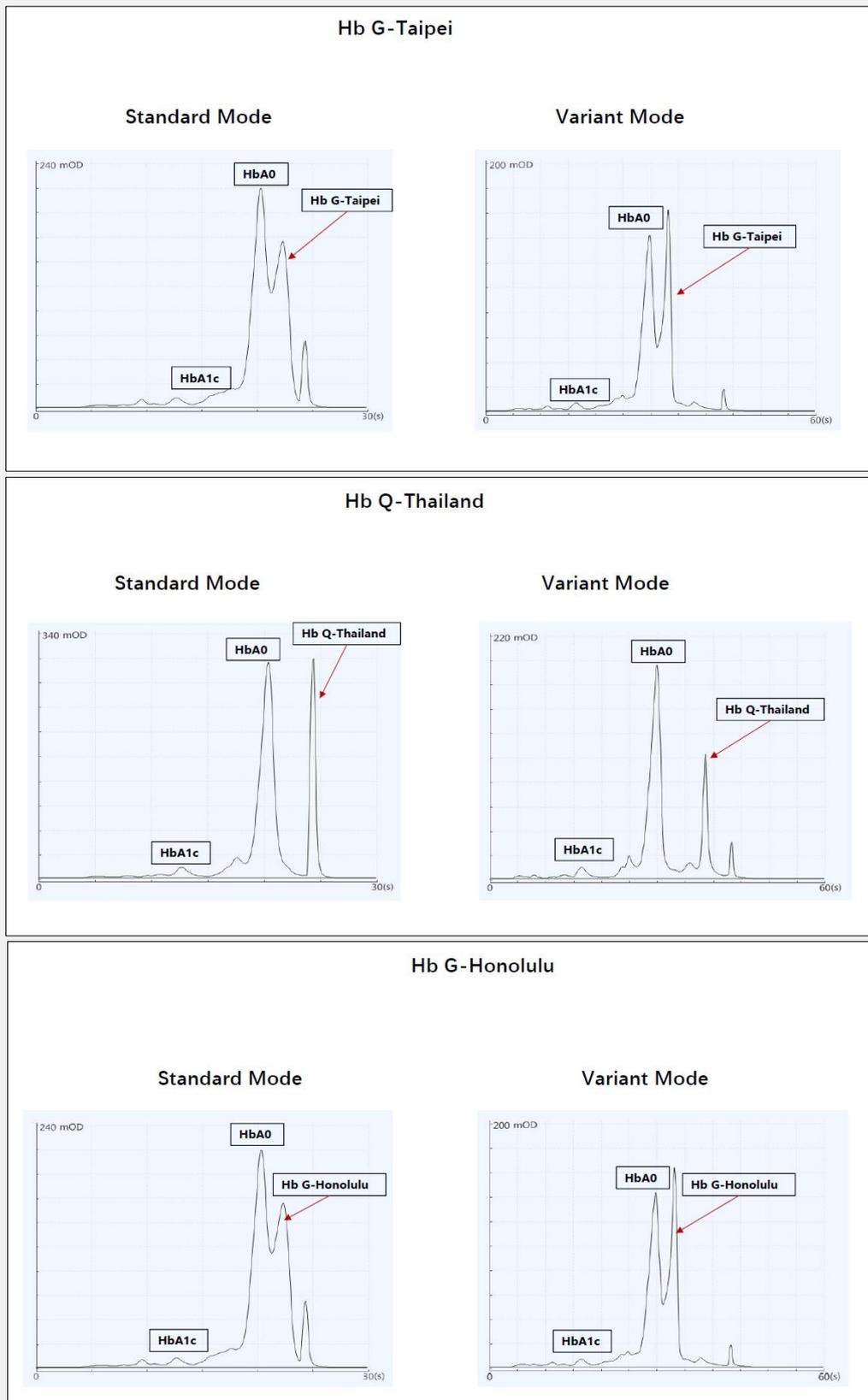


Figure S1. Chromatograms of the Hb variants provided by the H-120 analyzer (continued).

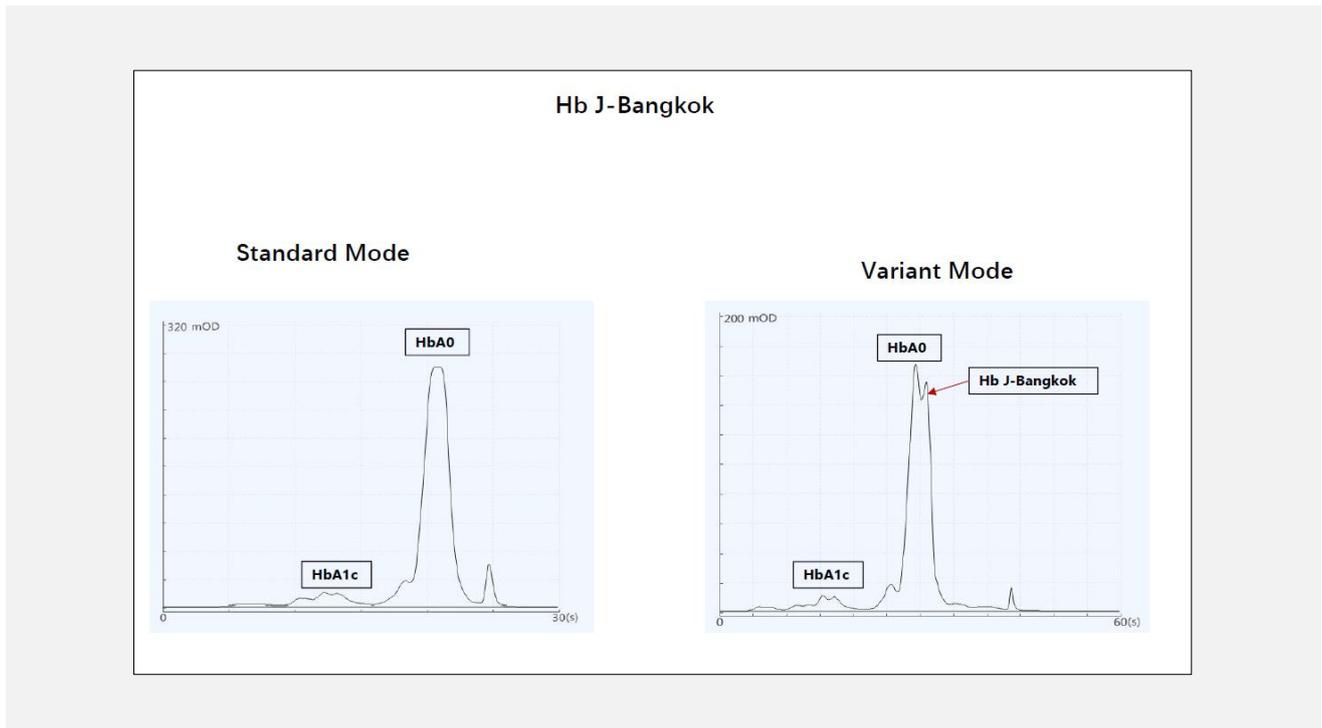


Figure S1. Chromatograms of the Hb variants provided by the H-120 analyzer (continued).