Confirmatory diagnosis of African trypanosomiasis relies on demonstration of parasites in body fluids by microscopy. Fluorescence microscopy (FM) increases the sensitivity, speed and ease of detecting parasites. However, the high costs of FM, limited lifespan of bulbs, and the need for a dark room have been a hindrance to its application in rural settings where the disease occurs.

The Primo Star iLED fluorescence microscope developed jointly by FIND and Carl Zeiss has the following characteristics:

- robust and simple to use
- affordable
- does not need a dark room
- uses inexpensive light-emitting diodes (LEDs) with lifespan of >10,000 hours
- can be operated using a battery or solar panel
- high-grade optics
- easy to switch between fluorescence and bright light
- can be used for other applications, such as tuberculosis and malaria diagnosis

Evaluation of the Primo Star iLED using acridine orange to stain trypanosomes shows that the sensitivity, speed and ease of reading are improved when compared with bright field microscopy that uses Giemsa staining.

To further improve parasite detection, a simple concentration procedure based on red blood cells lysis and centrifugation has been optimized and validated in four centres in Uganda and the Democratic Republic of Congo. This method can be used to process large volumes of blood, resulting in a remarkably low parasite detection limit.

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