

## Using McFarland Tube Densitometer in Pulse Field Gel Electrophoresis Molecular Subtyping Protocol of *Salmonella* Species, Egypt

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**Background:** Pulsed Field gel electrophoresis (PFGE) helps in monitoring and matching trends and patterns of *Salmonella* serotypes. Adjustment of Cell suspension (CS) concentration is an important step in PFGE protocol. In 2013, Egyptian PULSENET Lab had an old Microscan Turbidity Meter device, its maintenance, tubes source and measuring unit were unknown. This study was conducted for replacing the Dade Microscan Turbidity Meter device and tubes with Tube densitometer device measuring McFarland standard units and cheaper available screw capped tubes.

**Methods:** In 2014-2015 a study was conducted in PULSENET lab - Central Public Laboratory Health, Egypt. During *Salmonella* PFGE run, CS of *Salmonella* isolates were prepared, the Dade Microscan Turbidity Meter was used to adjust the turbidity of CS at range 0.4-0.6 in specific Falcon tube (2054), then CS was placed in screw capped sterile glass tubes to measure the equivalent McFarland units using calibrated densitometer device. The mean of the adjusted McFarland readings was used to prepare CS of *Salmonella* and *Shigella* certification strains. PFGE runs were performed according to the CDC Standardized Laboratory Protocol for Molecular Subtyping for *Salmonella* and *Shigella* serotypes, August 2009.

**Results:** 37 readings from Tube densitometer device were obtained, mean (4.4 McFarland) and Standard deviation was 0.85. PFGE runs were performed for *Salmonella* and *Shigella* certification strains, cell suspensions were adjusted at  $4.4 \pm 0.85$  McFarland. The PFGE tiffs had clear lanes, the bands are all crisp and distinct they are all easily marked, no ghost bands and no background, means proper CS concentration adjustments and successively passed the CDC certification evaluation.

**Conclusions:** PFGE protocol of *Salmonella* fingerprinting techniques, McFarland Tube Densitometer device can be used for preparation of CS concentrations at  $4.4 \pm 0.85$  McFarland, using cheap and available ordinary clear sterile tubes.