

Factors affecting Antibiotic Susceptibility Testing

Many conditions can affect the accuracy of the AST results, which is described in detail below.

1. pH

pH of the medium is an important factor which influences the accuracy of the antibiotic susceptibility testing. If the pH of the medium is too low than the desired pH, certain drugs such as amino glycosides, quinolones and macrolides lose their potency, on the other hand, antibiotic classes such as tetracyclines appear to have excess activity a lower Ph and the vice versa happens in the case of the higher pH.

2. Moisture

The presence of moisture content on the medium can counter act with accuracy of the susceptibility testing. It is important to remove the excess moisture present in the agar surface, by keeping it in the laminar flow hood for few minutes.

3. Effects of medium components

If the media selected for the antibiotic susceptibility contains excessive amounts of thymine or thymidine compounds, they will reversibly inhibit the action of certain antimicrobial agents such as trimethoprim groups. This reversible inhibition yields smaller or less distinct or even no zones and will be misinterpreted as resistant antibiotics. MHA is low in thymine and thymidine content and it can be used successfully to study the susceptibility of antibiotics.

Also the medium containing excessive cation reduces the zone size, while low cation content results in unacceptably large inhibition zones.

4. Amount of organism

The amount of the organism used for the susceptibility testing is standardized using a turbidity standard. This is obtained by a visual approximation using McFarland standard of 0.5 or else it can be determined by using a spectrophotometer with Optical density of 1 at 600 nm wavelength.