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Medical Science

STATUS OF BACTERIAL COLONY ISOLATION IN TEACHING INSTITUTIONS-COMPARISON BETWEEN CONVENTIONAL METHOD AND ITS MODIFICATIONS

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ABSTRACT

Aim- The isolation of bacterial colony in solid media has always been the attention in Microbiology. Quantity as well as quality of isolations have been the primary focus for study.

Materials and Method – 100 specimens of urine were processed by conventional as well as self modified method of streaking to study the difference in quality and quantity of isolated colonies.

Result – The modified streaking method offered better result in colony isolation both quantitatively and qualitatively, after standard overnight incubation.

Conclusion – The modified method of streak culture was proved superior. The method needs no extra resource and expertise for adoption, but a modified practice for studying delight for teachers and learners.

KEYWORDS : Solid culture, streaking, colony isolation, merit.

Introduction: Quantity and quality of bacterial colony isolation have been a limited experience in most institutions. The growth occurring by conventional method serves the need of diagnosis but teaching institutions demands excellence in colony isolation, to meet the need of teaching and learning requirement. How to achieve maximum isolated colony was therefore the aim of study. Study of morphology of colony in books should tally on the laboratory bench to attract interest in teaching learning process. The growth produced by book method mostly revealed continuous growth of colonies along lines of streaks.

The purpose of culture in solid media by way of final product needs to be more result oriented from teaching as well as diagnostic points of view.

Materials and Methods: 100 Specimens of midstream urine were targetted for study in the month of September, 2017. These were received from the KPC Hospital to the Microbiology Department of KPC Medical College from the suspected patients with urinary complaints.

All these specimens were inoculated in Mac Con key's Agar and Blood Agar by conventional streak culture. Separate sets of media were inoculated by modified streaking method, that is by making single line streaking from the primary inoculums and two lines without touching the well but following same conventional streaking from the secondary streaks onwards till the tail jig jag end. One streak from the margin of the well inoculum produced the best result in the modified sets of culture media by way of number as well as character of the isolated colonies for study.The colonies were studied after overnight incubation.

Result and Analysis:
The conventional streak culture showed lesser number of isolated colonies in comparison to modified streak culture. The conventional method exhibited few separate colonies mostly from tertiary streak set where as the modified method showed isolated colonies more in number and from secondary streak set itself. Study of more isolated colonies were made possible for teaching purpose in the modified streak culture. So, appreciation of the visible details of colonies of systemic bacteriology was distinctly more and so better in the modified sets of cultures undertaken.

The size, shape, margin, elevation, colour, surface, opacity, haemolysis etc could be better observed because of modification and larger area of surface growth of desired nature from the view point of observation of typical colonies as read in textbooks. The least amount of inoculum showed the best result on the planned aim.

The conclusive result after study of colonies and biochemical tests were as below:

Types	Isolates	Number
1.	E Coli	31
2.	Klebsiella	23
3.	Enterococcus	10
4.	Pseudomonas Pyocyanea	03
5.	Staphylococcus Saprophyticus	02
6.	Proteus Mirabilis	02
	No Growth	29
Total	100	

Discussion:
The study of colonies after processing for growth of isolated colonies in the solid media does not need overemphasis, as this fundamental and preliminary step and technique is the very foundation for study of microbiology. All the authors 1,2,3,4 under reference have described the streak culture method starting as three streaks from the well inoculum. Isolated colonies were observed in the subsequent streaks. But, the aim of the present study was to avail more quantity of quality colonies by quantification of the streak to one only from the well inoculum, the rest of the procedure remaining mostly same as the text book method.

The author has worked in five medical colleges and teaching hospitals. The growth on solid media was almost alike with minor differences in most colleges. Morphology of bacterial colonies grown could not be studied at length in most occasions, for teaching groups of students on regular basis during practical sessions. Isolated colonies were grown in limited number because of heavy density of inoculum practiced. There existed limited satisfaction in the study of morphology of colonies grown because the quality and so, the quantity of isolated colonies were numbered[5], creating difference between typical description of colonies read and observation of growth in the bench of laboratories.

This avoidable gap can be narrowed by the modification of technique applied to increase the number and character of colonies, an effort towards perfection.

As bacteriology is the main field of Microbiology that can be exhibited maximum, nothing lesser than typical scientific appreciation of the observed exhibits can create, stimulate future interest in the field. The learners automatically inclines, draws the isolated colonies in mind, an experience of unforgettable nature. The colonies observed remind their book description and for many students it is observation followed by easier reading and a layer of memory lingering on day to day, regular basis.

Inference: The study undertaken in KPC Medical College and Hospital assumes significance in academic scenario in medical colleges and hospitals and paramedical colleges.

It throws light on quality of culture isolations as existing and its improvement. Therefore, the modification attempted, may be more useful as, lesser amount and technique expresses more of microbiology.

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