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COPROCULTURE EXAM

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Abstract

The more and more increased diversity of the microbodies useful or harmful imposes their identification as precise as possible for the purpose of the separation of those wanted from those unwanted. The study of the diversity of the microbodies and of the phylogenic and epidemiologic relations existent between these has at its basis the bacterial systematics and consists of classification, nomenclature, identification and typication. The classification or the taxonomy of the microbodies consists in dividing them in groups, the nomenclature expresses the scientific, international, correct name, the identification presents the placing of the stalk to be studied in a taxognomic group, and the typication consists of the detection of some particular characteristics of the stalks belonging to the same taxognomic group. The diarrhetic syndrome is, as frequency, the third syndrome met in the medical practice.

Key words: microbody, coproculture, prelevation, isolation

INTRODUCTION

The bacteria was identified on the basis of their morphology, the colorimetric properties, the pigmentation capacities, the sporogenesis characteristics, the nutritional demands, the capacity to produce acid from sugar.

The antigenic structure, the composition in fat acids, the profile of protein, the sensitivity and resistance to bacteriophages, the sensitivity and resistance to bacteriocin substances or properties that are the basis of the development of the phenotypic methods of bacterial typification.

The progresses registered in the last years in the field of molecular biology allowed the development of some fast methods of diagnosis and typification based on the study of the nucleic acids, the storing of the genetic information in all the living bodies.

The analysis of the nucleic acids has as purpose the interpretation of the genetic information in the toxognomic and epidemiologic studies and in creating some strategies of prevention and control of microbial infections.
Using these methods were defined the taxospecies, that group the microbial stalks with similar phenotypic properties and genospecies, stalks that present a high homology in the sequence of the nucleic acids.

The numeric taxognomia is the method of identification most widely used in the present. The diagrams of numerical classification are based on a large number of taxognomic characters. In the place of the real type species, the numerical taxognomy offers as term of comparison a numerical generalization, the matrix of frequency.

MATERIAL AND METHODS

The methods used for the identification of the bacteria were:

1. Isolation of the aerobe bacteria

• Is seeded the sample on two culture mediums, a selective weak one (Mac Conkey) and one selective moderate (Hektoen) and is incubated 24h from 35-37ºC, following the cultures at 24 and 48 h for the appearance of the characteristic colonies. For the Vibrio type, the recommended selective medium is BSA (biliary agar salts) and for the levas the Sabouraud medium with Cloramfenicol.

• In order to increase the chances of isolation, the sample is subcultivated on mediums of enriching that favor the multiplication of the pathogens (ex. Acid Sodium Selenite broth for Salmonella spp., alkaline peptone water or broth with taurocholate and peptone at pH=8,0-9,0 for Vibrio from which, after incubation, can be made smears and cultures from the superior part of the medium). Is incubated 24 h at 35-37°C, then are made transfers on culture mediums.

• The colonies characteristic to each type can replicated in order to identify on the level of the species and the agglutination with specific serums.

2. Isolation of the yeasts

Microscopy

• on colored smears Gram is followed the presence of the yeasts in large quantity and predominant compared to the diminished fecaloid bacterial flora.

• is decisive for the cultivation of the stools in order to isolate and quantify the yeasts.

The cultivation on the Sabouraud medium with Cloramfenicol, with observation at 48–72 h.

In order to establish the fungal etiology of the diarrheic syndrome will be performed the quantitative examination of the yeasts, respectively the determination of the number of units forming fundal colonies per g or ml of stools, significantly quantitative being a number $>10^9$UFC/g or ml of stool.

The gamma radiations, at the action of colorants. They can be destroyed in 60 minutes at the temperature of 60°C, are sensitive to bacteriophages, to UV radiations. The following products have

bacteriostatic effect on the staphylococcus strains: lemon, pineapple, apple, apricot, peaches juice, chocolate, cocoa. The staphylococci are especially resistant to antibiotics. Over 95% of the staphylococci are resistant to penicillin. The staphylococci sterns resistant to methicillin are poli resistant strains exteriorizing the concomitant resistance toward cephalosporin, erythromycin, clindamycin. They are still sensible to vancomicin, although in some countries were noted already some strains resistant also to this reserve antibiotic.

RESULTS AND DISCUSSIONS

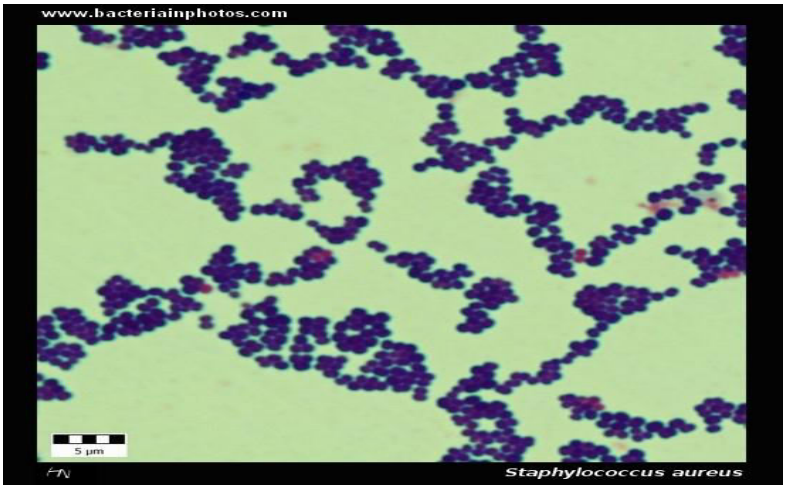

Fig. no.1. Microscopic aspect. S. Aureus, gram positive
Source - (www.micrbiologyinpictures.com)

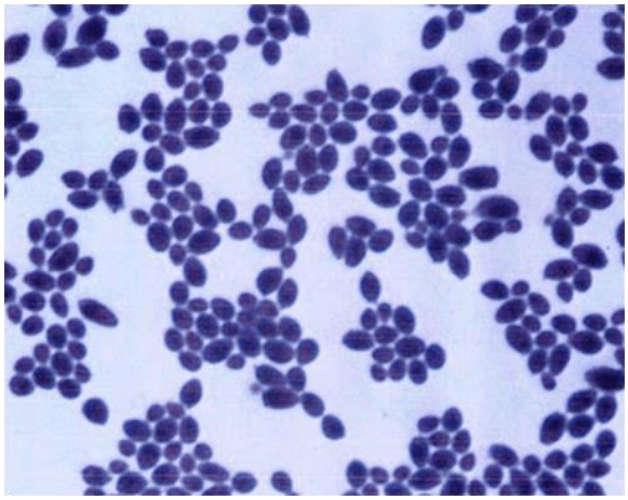

Fig. no. 2. Microscopic aspect. Candida albicans, coloration gram.

Source - (www.microboeline.com)

On the direct smear from the clinically colored Gram sample, the staphylococci have an aspect of positive gram or variable gram cocci, isolated in pairs, in short chains or in batches, intra or extracellular. It can be hard to be differentiated compared to the micrococci, streptococci, peptostreptococci, although the streptococci appear more frequently as chains of diplococcic, and the staphylococci as chains of distinctive individual cells. The characteristic aspect in the grapes cluster on the smear can be described under the form of positive gram cocci with aspect of staphylococci. On the colored smear Gram with methylene blue, made of culture on solid medium, the staphylococci appear under the form of perfect round cocci, disposed in irregular batches, similar to the grapes clusters and on those made from samples or cultures in liquid medium can appear isolated, in pairs, tetravalent or short chains on 3-4 cells. The staphylococci are gram positive, but in conditions of metabolic stress can become gram variable, in the same batch near to the gram positive cocci appear more or less gram negative cocci.

The microscopic exam follows the presence, form and dimensions of the yeast formations: blastopores, pseudohyphen, hyphen, eventual arthrospores. Details as the presence or absence of the capsule, the method of germination will be retained as important aspects for the future identification. On the patients under antifungal treatment is possible the underlining of the smears on the microscopic exam in the absence of their growth on the culture mediums.

The cultivation of the pathologic products is made on agar Sabouraud with Chloramphenicol and Gentamicin, medium that inhibates the multiplication of the bacteria contaminated and allows a good development of the yeasts.

On the mediums of culture the yeasts of medical interest are developed in 48-72 hours of incubation, in certain diagnosis suspicions the period of following being prolonged up to 7 days.

The temperature of incubation after the seeding is according to the anatomic area of sample provenience: 36-37°C for the internal and deep samples or 30°C for the superficial samples (skin and appendages).

After the obtaining of the primo culture is verified mandatorily its purity, because the bacterial contamination compromises the following phases of identification of the species. For this purpose are made Gram colored smears that will be examined under the microscope with the objective of immersion. In case of the bacterial presence are made replicas in order to purify the culture.

CONCLUSIONS

The microscopic aspect, as a series of phenotypic characters, as is the aspect of the colonies on non selective mediums, beside a restraint set of enzymatic tests allow the preliminary identification of the species more frequently isolated from staphylococci infections and not only.

In the laboratories of medical analysis, for the fungal infections are performed two types of analysis: culture and identification of fungi with anti fungigram for fungi of yeast form type and culture and identification of dermatofyte fungi.

In the exam of culture and identification of fungi with antifungigram is followed the isolation especially of yeasts.

The complete diagnosis consists of the microscopic examination and culture.

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