Picture left: Swab and transport tube
center: Examples of commercially available swabs as SEM images
right: smear of the sample material on an agar plate.

Tupfersysteme mit optimaler Aufnahmeeffizienz und verbessertem Swab systems with optimal absorption efficiency and improved preservation of bacterial viability and better detectability of other pathogens for clinical and hygienic diagnostics

Precise diagnosis of pathogens is required before specific medication can be prescribed. Especially in hospitals, it is important to identify multi-resistant bacteria. However, the precision and frequency of diagnostics are accompanied by rising costs. Various factors must be fulfilled for successful diagnostics. First of all, the pathogens must be collected in sufficient quantities during sampling. Secondly, the survival of the pathogens must be ensured during transportation between sampling and the analysis laboratory. In the laboratory, the pathogens must then be able to be released again from the sampling medium in order to ensure the identification of the pathogens and to be able to carry out targeted antibiosis and disinfection.

The most common method of sampling is to take a swab. Swabs are used in many areas of healthcare: for DNA tests, antigen tests, wound assessment, medical screening or even for hygiene swabs of surfaces. The swabbing methodology minimizes patient discomfort, optimizes time delays and avoids costs and risks. However, the efficiency of currently available swabs varies greatly. Depending on which swab material is used, which bacterial strains are present or are to be detected and how the swab itself is performed, the test results can differ.

The aim of the research project is to develop a new type of swab system based on unidirectionally oriented microfibers. The new system is intended to optimize the entire sampling system.

Project partner

The research project is being conducted in cooperation with the Leibnitz Institute for Interactive Materials (DWI), Aachen.

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The final report will be available to the interested public in the Federal Republic of Germany once the project has been completed. The project was also supported by numerous SMEs from industry as part of the project support committee.

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