

Abstract Submitted
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Electrical characterization of atmospheric plasma sources applied to ancient paper decontamination MOHAMED EL SHAER, TAREK ABDEL FATAH, MONA MOBASHER, Faculty of Engineering, Zagazig University, Zagazig, Egypt, MICHEL WUTTMANN, Institut Français d'Archéologie Orientale, Cairo, Egypt, ZAGAZIG UNIVERSITY COLLABORATION, IFAO COLLABORATION — Different types of atmospheric pressure non-thermal plasma sources are used to treat old paper against fungus and bacterial contaminations. Plasma operated at nearly the ambient temperature, has a great advantage in treating ancient paper due to its dry nature. Comparisons are made between different plasma sources as needle, micro-plasma jet and DBD. Measurements of the plasma electrical parameters of those discharges during the decontamination process help to identify the domain of applications suitable for each type of discharge. Plasma needle is operated in helium at 27.12 MHz, the discharge voltage, current and the power dissipated are measured at the needle in different operating conditions. Micro-plasma jet and DBD are operated at 15 KHz. The variations of the plasma gas temperature measured by an infrared thermometer and the electron temperature measured by a single Langmuir probe against RF perturbation are studied depending on the discharge frequency. The action of different plasma sources are compared through the application of the plasma on a culture of *Aspergillus niger*, which is a type of fungus commonly found in old papers.

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