

CHARAKTERIZATION AND APPLICATION OF MICROWAVE PLASMA ON WOUND HEALING

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The aim of this presentation is the investigation of the microwave plasmas for skin wound healing. Microwave discharges used for this work were generated in argon; the surface wave sustained and direct vortex torch were compared. The model wounds on laboratory mousses were treated by plasma and wound healing was examined during 3 weeks after the plasma treatment. Both plasma systems showed healing acceleration. Application of torch discharge was proved to be the most effective method in the healing of skin defects. The plasma vortex system was visualized using fast camera at selected powers and gas flows. Additionally, determination of active particles was taken by optical emission spectroscopy. Based on these measurements, plasma parameters were determined: electron temperature, rotational and vibrational temperatures. To determine role of different plasma active species, the treatment of indigo coloured artificial skin model was treated under various conditions by both plasma systems. Results show that the direct interaction between plasma particles is the main effect, role of radiation, only, is more or less negligible.

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