

PLASMA JET AS A SOURCE FOR WOUND HEALING

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Electromagnetic wave travelling along a dielectric tube can produce plasma inside the gas filled tube which is the typical cylindrical plasma column of surface-wave-sustained discharges (SWD). SWD could be built with single metal antenna emitting the wave into gas media. Both plasma sources produce non-thermal plasma with achievable gas temperature below thermal affection limit of skin. Plasma is radiating significant amount of charged particles and active species, electromagnetic and UV radiation (plasma parameters).

This plasma sources allow variation of discharge conditions as geometric parameters (discharge tube inner diameter and thickness), wave power and gas flow velocity which results in changes of main plasma parameters. Appropriate combination of the parameters leads to low temperature plasma torch obtaining (gas temperature up to 30–38°C) suitable for in vivo treatment of live BALB-C mouse models.

The purpose of this research is to study both devices and the discharge conditions leading to acceleration of wound healing at short treatment times with relatively low gas flow. Comparison between devices effectiveness on wound healing will be presented, too.

Acknowledgments: This work is supported by the Fund for Scientific Research of Sofia University under Grant No 80-10-56/2020. One of the authors' (TB) work was supported also by the Bulgarian Ministry of Education and Science under the National Program for Research “Young Scientists and Postdoctoral Students”.