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On the penetration of reactive oxygen and nitrogen species generated by a plasma jet into and through mice skin with/without stratum corneum XINPEI LU, HuaZhong University of Science and Technology — In this paper, reactive oxygen and nitrogen species (RONS) generated by a plasma jet penetrating through and left in the skin after the plasma treatment are measured, and the effects of stratum corneum (SC) on the penetration of the RONS are also investigated. It is found that the RONS generated by the plasma jet can penetrate through the skin, and that the penetration of some of the RONS could be enhanced significantly by tape stripping the SC layer of the skin. Further investigation find that the typical ROS species, including OH, $^1O_2$, O_3 and H_2O_2, cant penetrate through the mice skin at all no matter whether the SC layer of the skin is present or not, where the thickness of the mice skin is about 200-300μm. Finally, it is found that high concentrations of long-lived RONS (H_2O_2, NO_2^- and NO_3^-) are left in the skin after the plasma treatment, which means that the plasma treatment could have long-time scale therapy effect.

XinPei Lu
HuaZhong University of Science and Technology

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