Effects of flexible plasma conditions on transdermal delivery behaviors into tissue model

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Forthousands of years, people have placed medical plant or cosmetic agents on theskin surface for healing, protective and cosmetic reasons. However, those agentscannot penetrate the dermal layer of skin because of important function of skinis protective barriers against ingress of foreign material. Several methodssuch as laser, nanoemulsion, and microneedle have been developed to overcomethese limitations. However, these methods have problems such as erythema,inflammation, stability, high price, secondary infection and safety. Flexibleplasma has prepared as a new tool for overcome the disadvantage of establishedmethods and help to penetrate target agents into skin because plasma may beuseful in the treatment of skin infections, impaired microcirculation and woundhealing. We present an *in vitro* modelwith blue dye, oil in water (O/W) emulsion that can be show effectiveness inthe depth of penetration. Plasma treatment conditions such as power, time anddistance can be optimized on the tissue model. Flexible plasma in this workhave unique advantages in improving the efficiency of transdermal delivery anddecreasing the time of administration, which is significant for the delivery ofvarious biopharmaceutical and rapid self-administration of flexible plasmapatch in future.