WOUND HEALING

A NEW PASSION FRUIT EXTRACT PROMOTING SKIN WOUND HEALING PROCESS

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Introduction: Wound healing is an essential but complex physiological process, which includes 3 overlapping phases (inflammatory phase, repairing phase with of cell proliferation and migration, and remodeling phase), and which involves various cell types and factors.

Objective: We investigated the efficacy of a patented active ingredient of passion fruit, maracuja oil concentrate, rich in unsaponifiable fraction obtained from one of our sustainable supply chains, on wound healing processes in vitro and in vivo.

Materials and Methods: Fibroblasts or Keratinocytes were incubated in presence of Maracuja oil concentrate for 24h to 72h. Cell migration was followed by microscopy, cell proliferation capacity was assessed by BrdU assay, hyaluronic acid production was quantified by ELISA and gene expression by RT-qPCR. Contractile forces were measured in the Glasbox system.
Immunostainings were performed on lesioned-reconstructed full-thickness skin model.
An in vivo study was performed on 2 group of 24 female subjects. The efficacy of a formulated product containing the extract has been evaluated in a controlled clinical study on 48 female subjects vs a reference product. Clinical assessment of healing efficacy, hydration and skin barrier have been measured before and after 14 days following a superficial Dermabrasion.

Results: The extract induced a wide array of benefical effects in vitro: increase in keratinocyte and fibroblast proliferation and migration, increase in hyaluronic acid synthesis, stimulation of fibroblast contractile forces, overexpression of dermal matrix genes, restoration of dermal-epidermal junction in a 3D model mimicking wound healing. The ingredient showed clinical efficacy on restoration of skin barrier function similar to the reference product.

Conclusion: This study shows that this new active ingredient effectively improved wound healing process, thereby presumably reducing the appearance of scar.