Introduction

- OPAL A consists of a paw paw pulp treated by a process involving heating and alkalinisation*.
- OPAL A may improve healing of wounds that are resistant to standard care therapy (Mitchell et al., 2008; 2010), although the mechanism is yet to be determined.
- We hypothesised that OPAL A has an anti-inflammatory effect involving the inhibition of the pathway leading to generation of pro-inflammatory leukotrienes.

Methods

Paw paw (Carica papaya)

Homogenise, heat (55°C) + NaHCO₃ & filter

OPAL A

Homogenise, heat (21, 55, 72°C) ± NaHCO₃ & filter

OPAL A variants

Filtrate, Cream

Elute from silica gel with ethyl acetate, acetone, methanol & water

Patient Treatment 8 wk

Fractions

5-LOX Assay

Stability

The active compounds present in OPAL A were stable when the filtrate was prepared under varying temperature and alkalinisation conditions.

5-LOX assay

- OPAL A was incubated with 5-LOX and linoleic acid (substrate), in the presence of haemoglobin (catalyst) and DMAB and MBTH (oxidative coupling reactants).

Results

Wound Healing

OPAL A produced a marked improvement in resolution of non-healing wounds in a patient with an infected traumatic leg ulcer.

Figure 1  Non-healing infected traumatic ulcer in an 84 yr. man before (A), and after 4 (B) and 8 weeks (C) treatment with OPAL A filtrate and cream. Necrotic material was absent, and slough reduced markedly after 4 weeks. Almost complete healing of the wound was evident after 8 weeks of treatment.

5-LOX activity assay

OPAL A inhibited the 5-LOX activity assay.

Figure 2  OPAL A markedly inhibited the 5-LOX activity assay (mean±SEM; n=3). This effect may be attributed to either direct inhibition of the 5-LOX enzyme, or a possible antioxidant effect that suppresses the activity of the product, linoleic hydroperoxide.

Conclusion

- OPAL A inhibited a 5-LOX activity assay
- The findings raise the possibility of an anti-inflammatory effect that may serve to improve wound healing.

References