

HONEY

Healing Power

Clinical study
Bacteriological study
Experimental study
Results and Conclusions

HONEY

B. DESCOTTES

G. PAUTARD

V. PLOK

C.Y. COUQUET

MJ. CORNUEJOLS

V. GLOAGUEN

A. RAYNAUD

F. LABROUSSE

Y. LUCAS

A. DESMOULIERE

HONEY

- Its role in wound healing has been recognised for thousands of years.
- Since the year 2000, publications have multiplied particularly with the knowledge of new honey.
- But few clinical experiments have been published.

HONEY

Our clinical experience

- 25 years (from 1984 to 2009)
- 3,012 treated lesions
- Essentially with Thyme honey

HONEY

■ Treated lesions

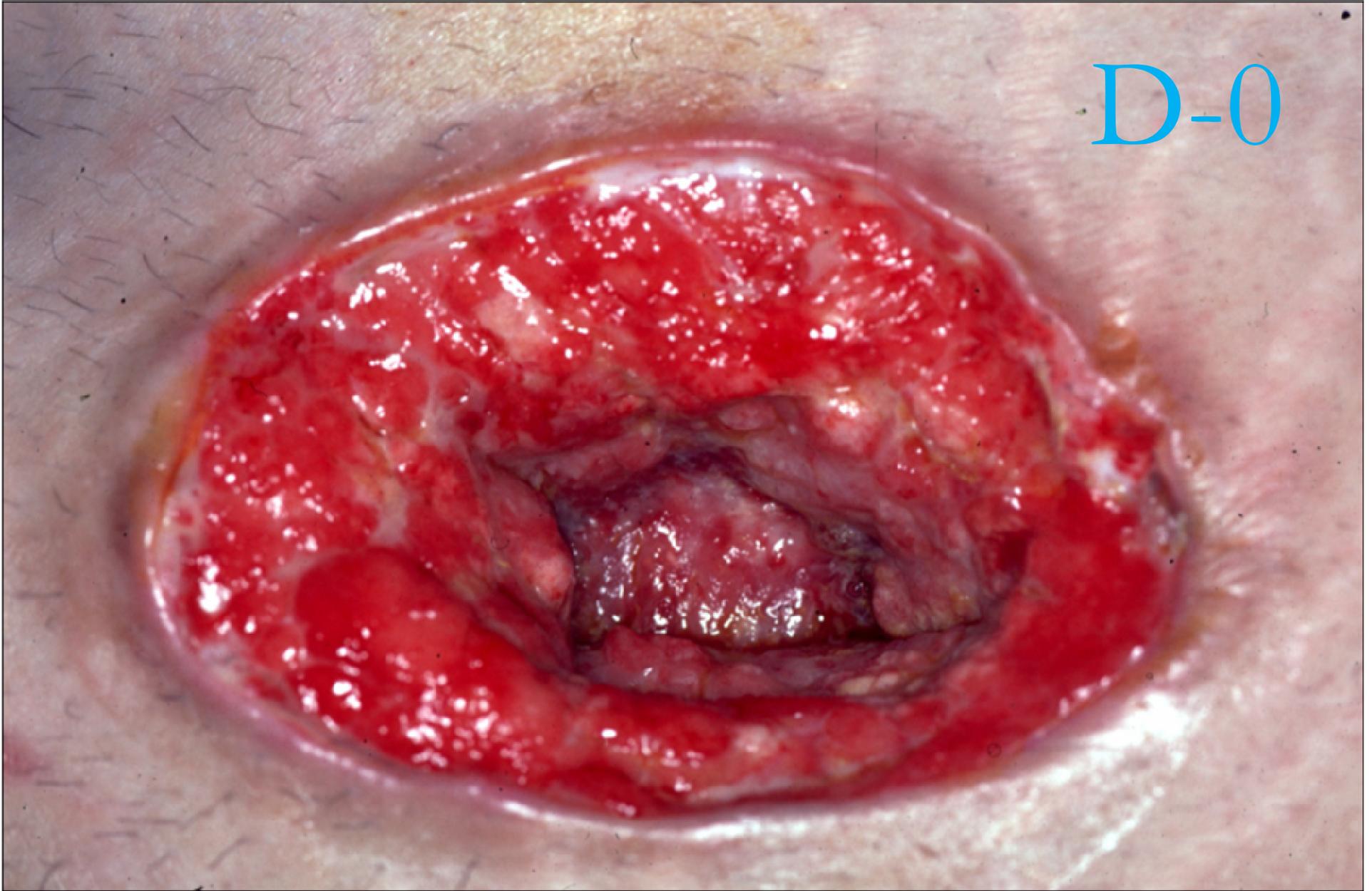
■ miscellaneous lesions	52
■ sacro-coccygeal cysts	33
■ stomy closures	102
■ dissension wounds	2825
Total	3012

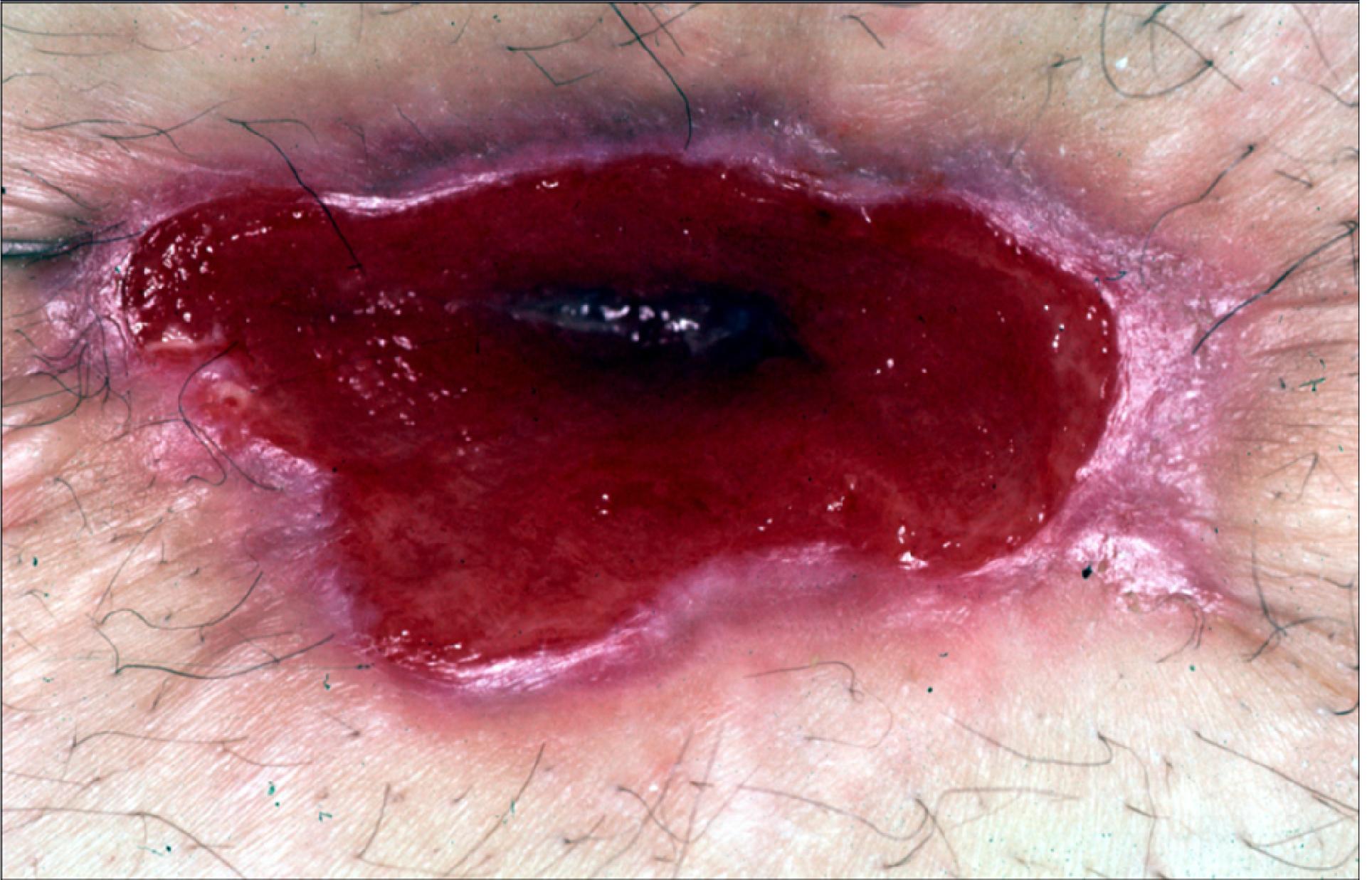
Case Study

Colostomy closure:

- **Age : 23 ys, W: 90kg**
- **07-01-1995: Hartmann, colostomy
(perisigmoid peritonitis)**
- **22-03-1995: anastomosis reconstruction**

D-0



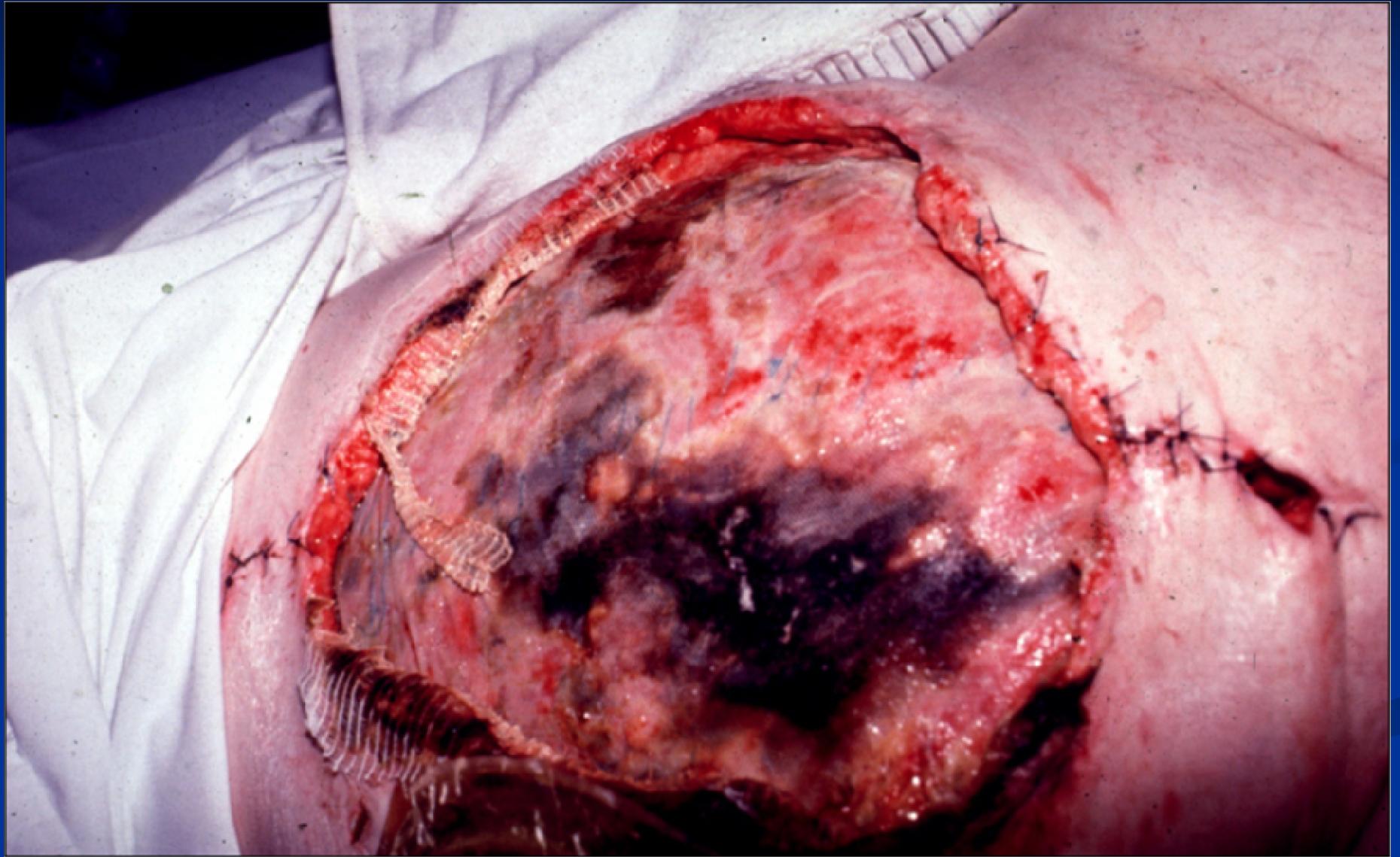


D-21

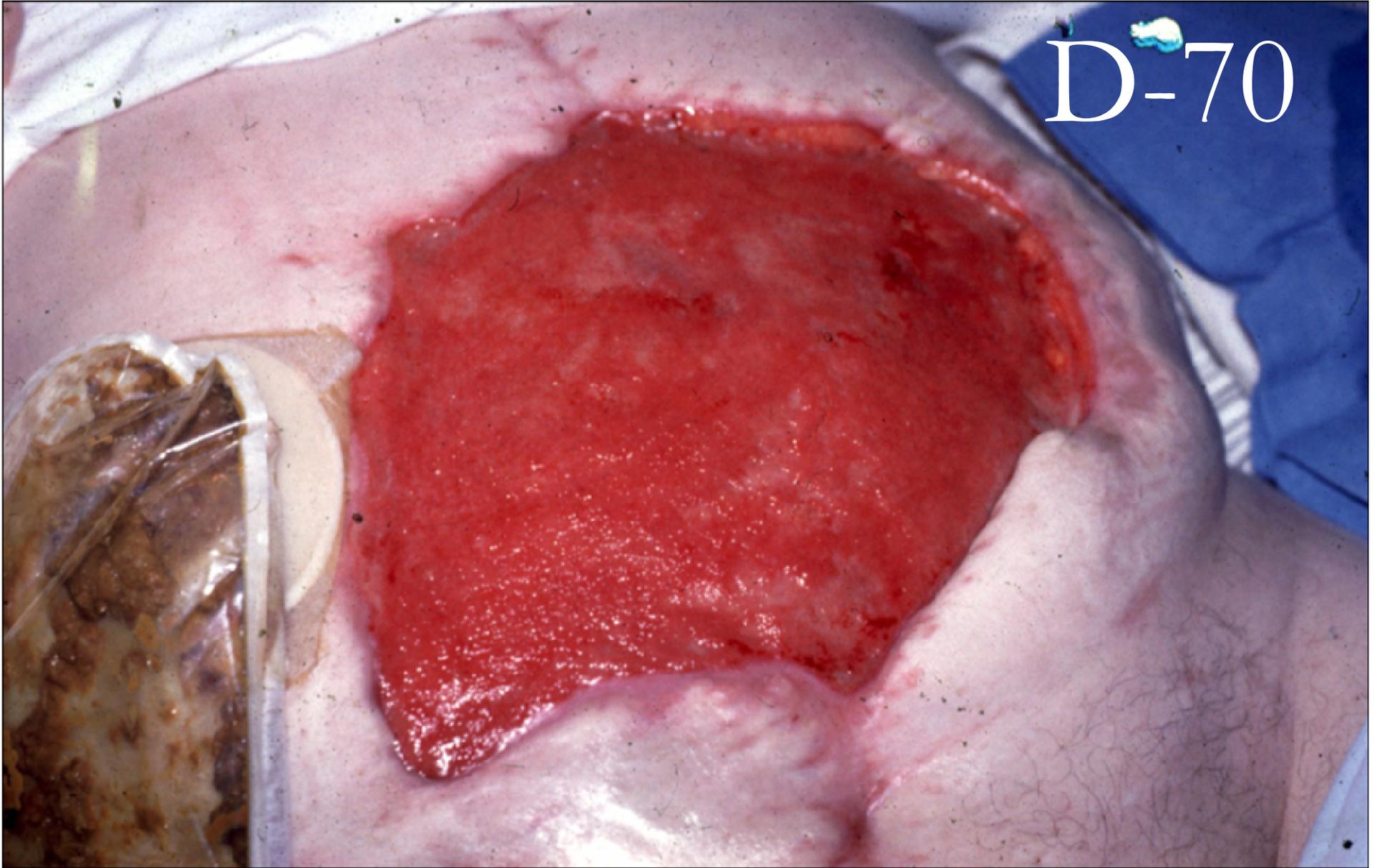


Mr. D...

- Necrosis of anterior abdominal wall
 - Age: 56, Weigh: 106kg
 - Rheumatoid polyarthritis
 - 22/02/83 : Peritonitis due to perforation
(colostomy + cholecystectomy)
 - 04/03/83 : eventration + abdominal wall repair
 - 26/04/83 : abdominal wall reconstruction
 - 10/02/89 : Recurrence of eventration repair



D-70



Mr F...

- Numerous surgical interventions
- 2008:
 - Eventration repair
- 6 February 2009:
 - Recurrence of eventration repair
 - VAC
- 21 February 2009:
 - wound dressing with honey





TRF---E le 17104109







MR F. - - E

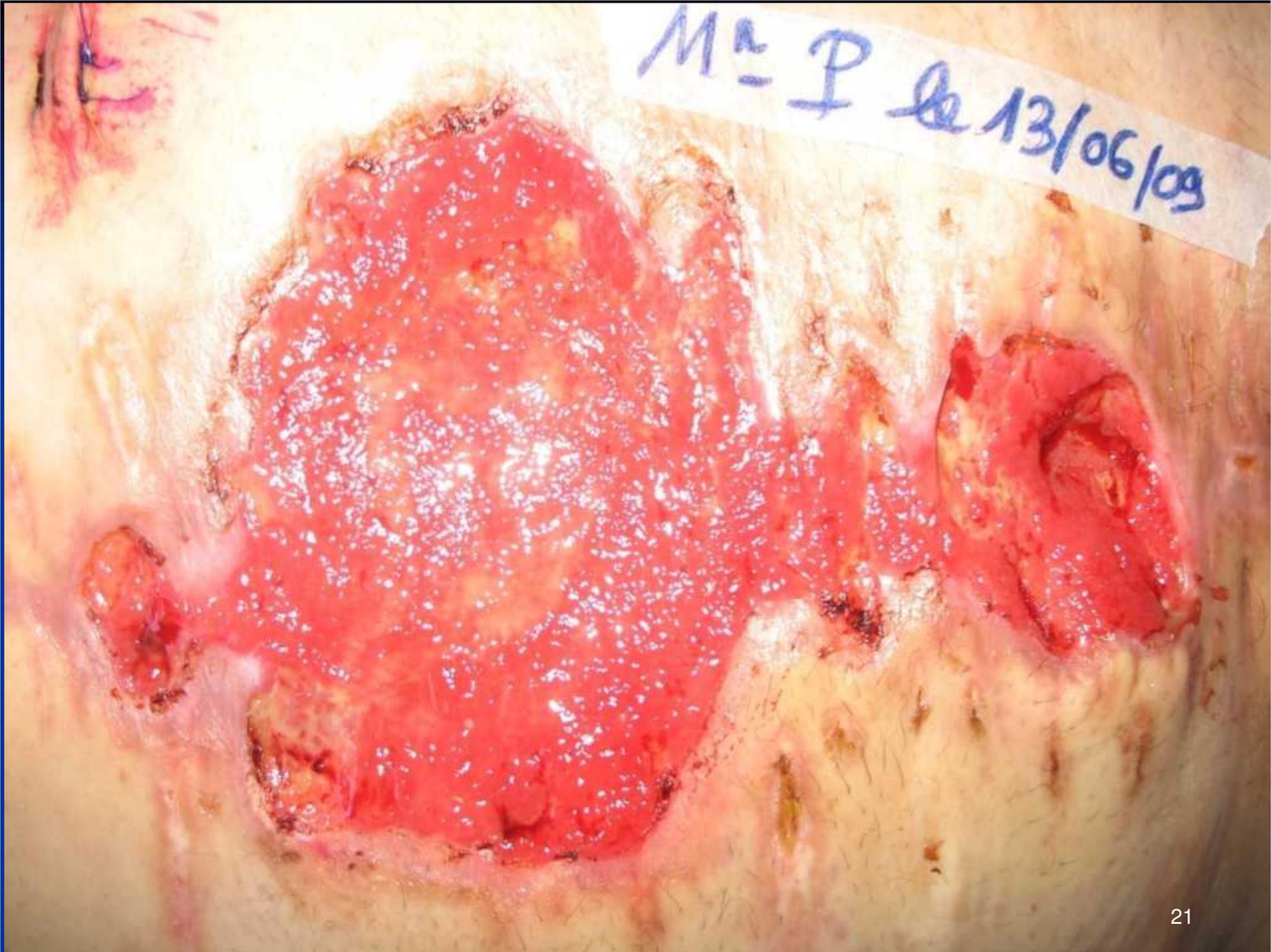
19/06/09

Mr Pi...

- 45 years old
- 6 May 2009:
 - Abdominal wall abscess, rejection of the abdominal suture repair
 - Abdominal wall hemorrhage
- 20 May 2009:
 - Evacuation of liver and spleen hematoma
- 2 June 2009:
 - Splenectomy
 - Abdominal wall treatment with honey



Mr P 13/06/09









Case Study

- 2° DEGREE BURN
 - Oil burn

D-15



D-30



HONEY

For us, all types of honey have healing power which comes from:

- its sugar rich composition
- the floral origin of nectar
- **bee gastric juices**

Resulting in:

a variability of healing power according to the bacteriological power of the honey on the treated wounds.

HONEY

BACTERIOLOGICAL STUDY

- AGAINST THE STAPHYLOCOCCUS AUREUS
- DIAMETER OF INHIBITION (in millimetres):

Forest Pine : 15,86

Sunflower : 15,37

Chestnut : 13,68

Thyme : 13,66

arbutus:	12,66
lavender:	12,08
rhododendron:	11,58
rosemary:	10,52
acacia:	9,3
colza:	9,17
alfalfa:	8,27

- **INDEPENDENT OF pH** varies from 5,9 to 3,2

HONEY BACTERIOLOGICAL STUDY

■ ESCHERICHIA COLI

FOREST PINE: 14,7

CHESTNUT: 13,76

THYME: 11,95

ARBUTUS : 11,71

RHODODENDRON : 11,64

ACACIA : 11,54

LAVENDER : 9,92

ALFALFA : 9,12

COLZA : 7,77

HONEY

BACTERIOLOGICAL STUDY

The antimicrobial activity of the each honey may vary greatly with regard to the different germs studied :

Lavender

E coli
9,92

Pseudomonas
10,72

Enterococcus
9,29

Staphylococcus
12,08

Thyme

E coli
11,66

Pseudomonas
12,2

Enterococcus
12,22

Staphylococcus
13,66

New Honey

- *In New Zealand*

LEPTOSPERUM

Polygaliforum

Scoparum

Semisaccatum

Jelly bush

Manuka

Specific antibacterial substance

« unique manuka factor »

UMF

HONEY

Bacteriological study on the microplate

- COMPARISON OF HONEY

MANUKA

MEDIHONEY

and

THYME

Microplate Study

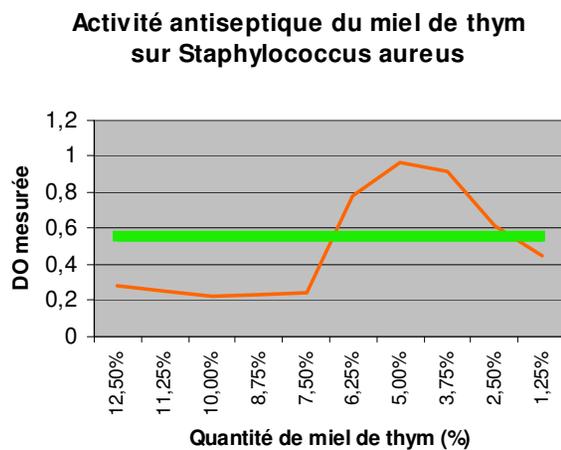
(96-microtiter plate)

Antiseptic activity of Thyme honey

Results obtained with Thyme honey after 24h incubation at 37°C :

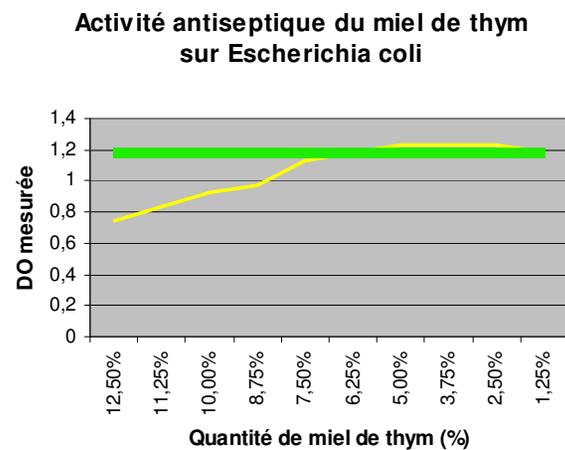
- Deposit of 50 μ L of 12,5 to 1,25% final concentration of honey solution.
- Addition of 150 μ L bacterial suspension of 10^6 bacteria per mL concentration.
- Microplates :

Témoign culture : 0,824



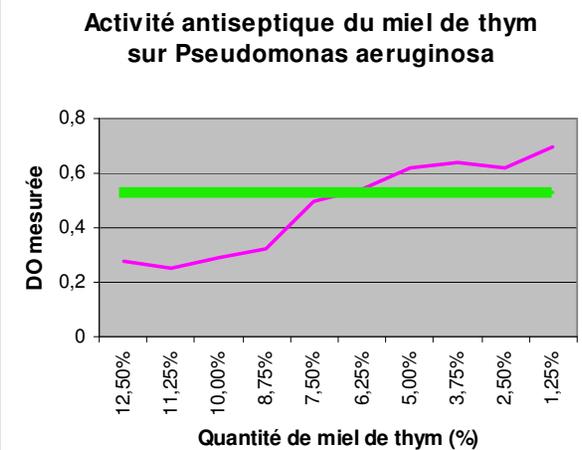
Témoign milieu : 0,283

Témoign culture : 1,369



Témoign milieu : 0,192

Témoign culture : 0,740



Témoign milieu : 0,142

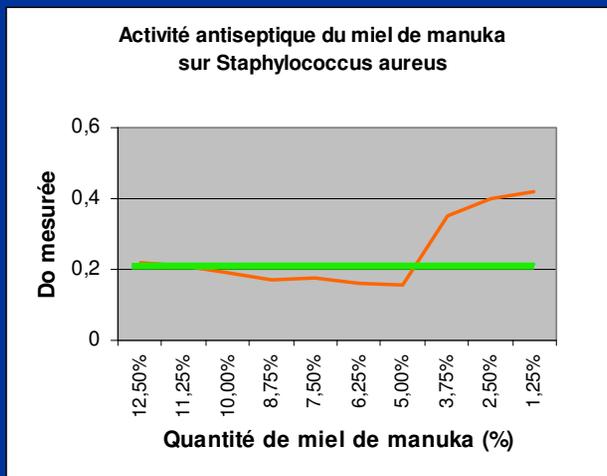
Microplate Study

Antiseptic activity of Manuka honey

Results obtained with Manuka honey after 24h incubation at 37°C :

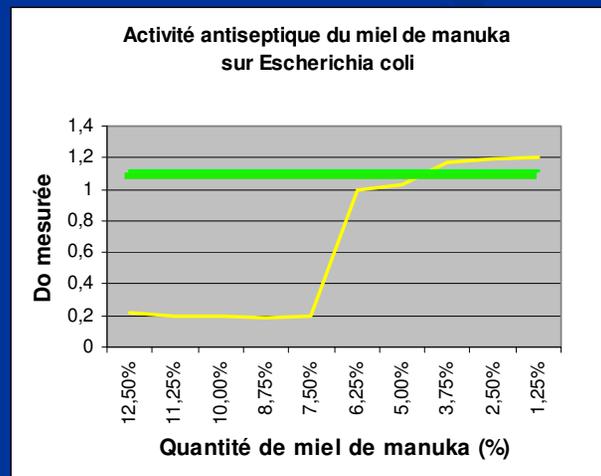
- Deposit of 50 µL of 12,5 to 1,25% final concentration of honey solution.
- Addition of 150µL bacterial suspension of 10⁶ bacteria per mL concentration.
- Microplates :

Témoin culture : 0,389



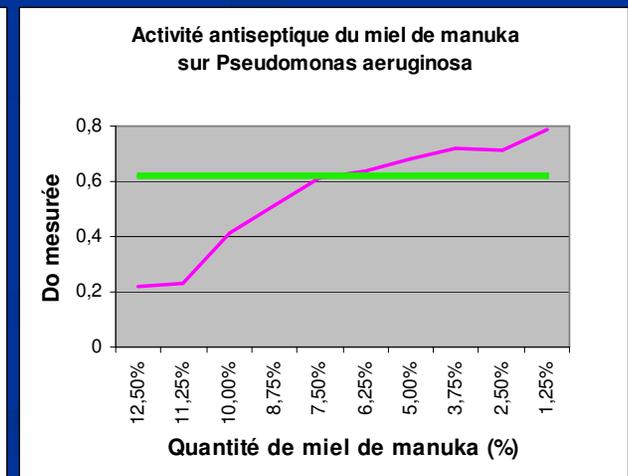
Témoin milieu : 0,172

Témoin culture : 1,356



Témoin milieu : 0,238

Témoin culture : 0,806



Témoin milieu : 0,190

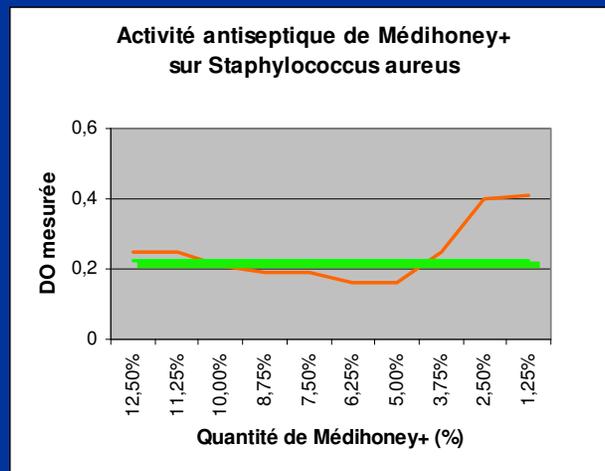
Microplate Study

Antiseptic activity of Medi-honey

Results obtained with Medi-honey after 24h incubation at 37°C :

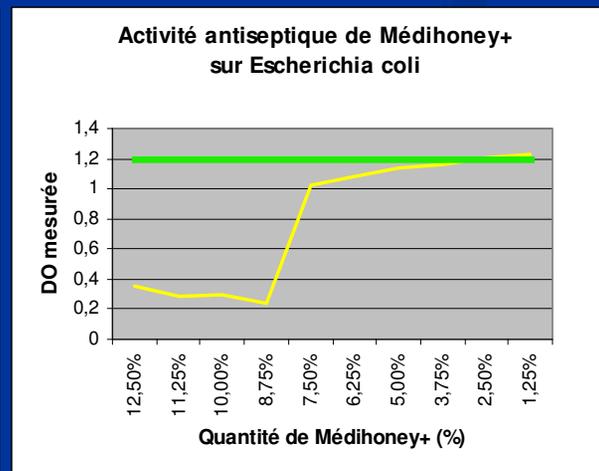
- Deposit of 50 μ L of 12,5 to 1,25% final concentration of honey solution.
- Addition of 150 μ L bacterial suspension of 10^6 bacteria per mL concentration.
- Microplates :

Témoïn culture : 0,384



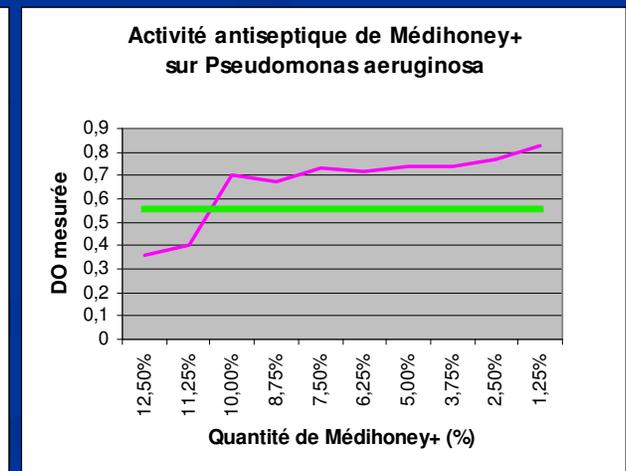
Témoïn milieu : 0,158

Témoïn culture : 1,375



Témoïn milieu : 0,181

Témoïn culture : 0,767

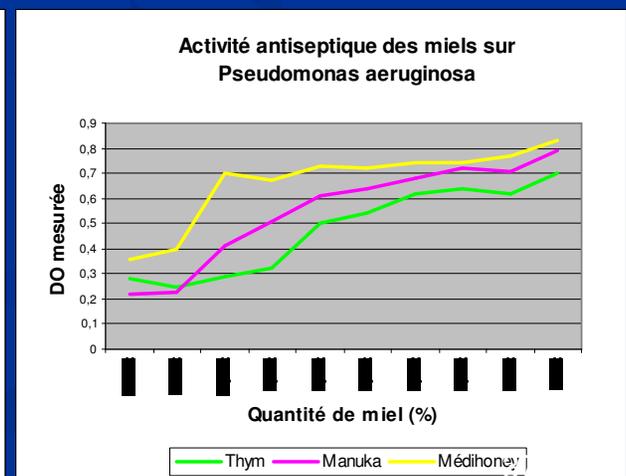
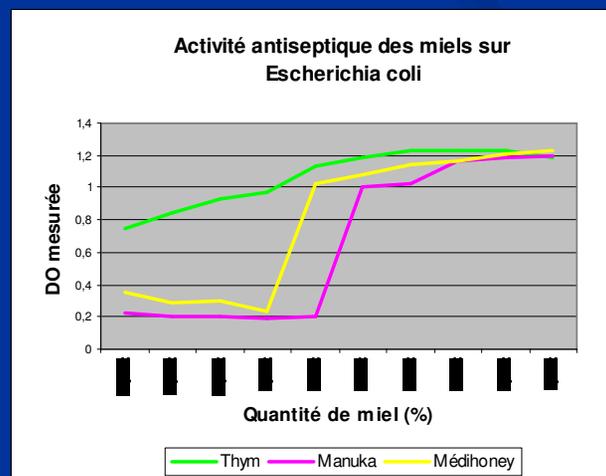
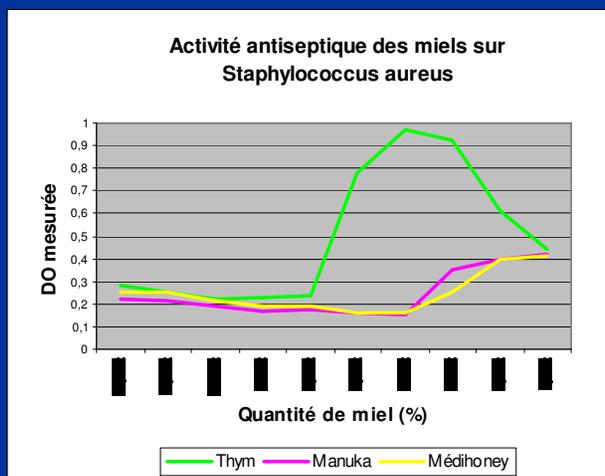


Témoïn milieu : 0,204

Antiseptic activities of honey

Results obtained with the different types of honey after 24h incubation at 37°C :

- Deposit of 50 μL of 12,5 to 1,25% final concentration of honey solution.
- Addition of 150 μL bacterial suspension of 10^6 bacteria per mL concentration.
- Microplates:



HONEY

■ PRINCIPAL ACTION :

The degradation of sugar



due to the action of
GLUCOSE OXYDASE



Wound Healing

Antibacterial action derives from:

- The antibacterial power of the essential oil of the flower's nectar : thymol, phenol etc...
- The acid environment linked to the pH of the honey and of the formation of gluconic acid with the presence of H_2O_2
- Honey osmolarities



**UNFAVOURABLE ENVIRONMENT TO
MICROBIAL PROLIFERATION**

HONEY EXPERIMENTAL STUDY

PROTOCOLS

■ THE EARS

Thickness and necrosis problems: abandon

■ THE BACK:

- Surface: 2 x 2cm.
- Photographed every 2 days
- 3D photos
- Biopsies

Jelonet

Thyme

Manuka

Thyme



Thyme

Algosteril

Thyme

Silver Ion

Experimental study

- Duration : 22 days
- Difficulties met :
 - Dressing: fixing technique
 - Ambient wound contamination
 - Non utilisation of antiseptic from the beginning
 - Widening of wound linked to skin elasticity
 - Death of one rabbit

Results

Rabbit-1

D-2



Jelonet

Thyme

Algosteril

Manuka

Silver Ion

D-22



Rabbit-3

D-2



Jelonet



Thyme



Algosteril



Manuka



Silver Ion

Rabbit-3

D-7

Thyme



Manuka



D-14

Thyme



Manuka



Rabbit-3

D-22



Jelonet



Thyme



Algosteril



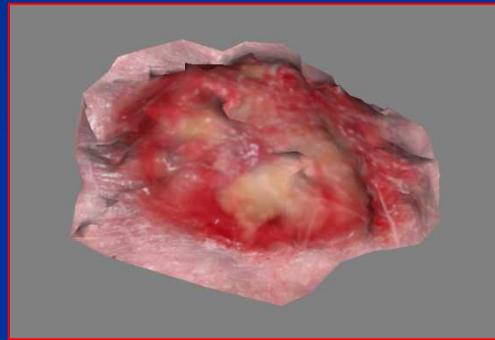
Manuka



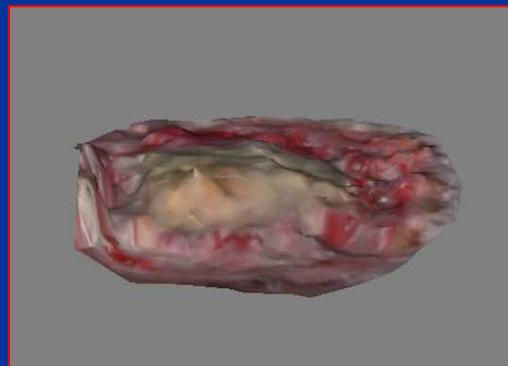
Silver Ion

3D Photo

- Rabbit I-2 (thyme honey at day 7)



- Rabbit I-3 (thyme honey at day 7)



Results on anatomo-pathology

- Microscopic examination of Biopsies
 - The biopsies of the wound treated by Thyme and Manuka:

a fibrosis with neo-angiogenesis of a moderate to important intensity.

Discussion

- This presentation is just the beginning of our experimental research.
- The study will take place over 2 years:
 - Master II student at Faculty of Sciences, Limoges
(on antibacterial and healing powers of honey).
 - Professor LUCAS et al., IUT , Bourges.
(3D photo study)
 - Professor COQUET et al., director of veterinary laboratory department, Limoges.
 - Professor DESMOULIERE et al., faculty of pharmacy, Limoges.
 - Professor CHULIA, faculty of pharmacy, Limoges.
 - Professor LABROUSSE et al., department of anatomo-pathology, Limoges.
 - Professor DESCOTTES et al., department of visceral surgery and transplantation, CHU Dupuytren, Limoges.

Conclusion

- In wound treatment, all our research allows us to state that, Thyme honey heals the wounds in the same way as other clinical wound treatment and as well as other available honey on the market (from New Zealand and Australia).
- And from the economic crisis point of view it seems wise to consider this treatment with more interest.

Conclusion

- From the economic aspect

Available product		Unit Price	Treatment Price
Hydrofiber	10x10	1.51 €	6.04 €
Alginate	10x10	2.02 €	8.08 €
Jelonet	10x10	0.15 €	0.33 €
Thyme Honey	pot of 60g	2.10 €	1.16 €