

# A Case Study on effective Odour Control in Malignant Wound Using a Novel Cinnamon-based Dressing\*

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## Introduction

Malignant fungating wounds in women with breast cancer occur when localised tumours infiltrate skin, blood capillaries and lymph vessels. Their prevalence is estimated between 5 and 10%, although the exact figure is unknown due to limited data (Adderley and Holt 2014).

Tumour wounds present specific challenges for healthcare professionals and patients, owing to associated symptoms such as exudate, malodour, and pain (Lo et al., 2012).

The intensity, discomfort, and subjective experience of these unpleasant odours can vary greatly among individuals. However, malodours can lead to discomfort, anxiety, and a diminished quality of life for patients (Gethin et al., 2014). Currently, a wide range of anti-odour treatments are available, underscoring the complexity and challenge of managing such conditions (Gethin et al., 2023).

Addressing chronic wound malodour is crucial for patient comfort and healing. This case study assesses the effectiveness of a cinnamon-based anti-odour dressing\* in treating odours emanating from a breast tumour wound, within a specialised clinic in Portugal.

### Clinical history:

39-year-old patient Maria (pseudonym):

- Was diagnosed with inflammatory breast carcinoma in 2021,
- Underwent mastectomy, neoadjuvant chemotherapy, and trastuzumab treatment,
- Experienced a carcinoma relapse in February 2022,
- Developed a malignant wound measuring 10 x 30 x 2cm.

### Therapeutic treatment:

Palliative radiotherapy, alongside a comprehensive wound management protocol, includes:

- Polyhexamethylene Biguanide Hydrochloride (PMHD)
- Non-adherent tulle
- Gelling fiber dressing and secondary absorbent layer

## Method

The Cinnamon Secondary Dressing (Cinesteam®) was incorporated into Maria's therapeutic regimen for a duration of 10 days, with the dressing being replaced every two days.

Discomfort associated with wound odour was evaluated using a scale from 0 to 10 (where 10 represents the most significant discomfort), utilising the Toronto scale (Maida et al., 2009). Assessments were conducted on the initial day of treatment (Day 0), as well as 48 and 72 hours following the application of the secondary dressing. The evaluation of odour was carried out simultaneously by two nurses and the patient.

## Results

### Perception of smell by nurses

The cinnamon dressing significantly diminished the discomfort associated with the wound's odour, reducing scores from 2-4 to 0, while the condition of the wound remained unchanged (Table 1). Beginning 48 hours after initiating the use of Cinesteam®, nurses reported perceiving a cinnamon aroma upon entering the room.

		J0	+48h	+72h
1) Room entrance	With mask =	0	NC	0
	Without mask =	0	NC	0
2) Near the patient with dressing	With mask =	2	0	0
	Without mask =	3	0	0
3) Near the patient without dressing	With mask =	2	1	0
	Without mask =	4	2	0

Table 1. Assessment of odour-related discomfort by nurses using a scale of 0 to 10 (NC: Not Communicated)

### Patient's perception of smell

The patient was unable to quantify the odour using a numerical scale. However, she described the odour perceived on Day 0 (D0) as intense, and then at +48 hours and at +72 hours, she noted it as minimal.

### Satisfaction with using cinnamon dressing

Maria reported an enhancement in her psychological well-being and comfort following the use of the cinnamon dressing. Healthcare professionals found the dressing straightforward to use, but most importantly, they rated its odour control properties as "very good" (Figure 1).

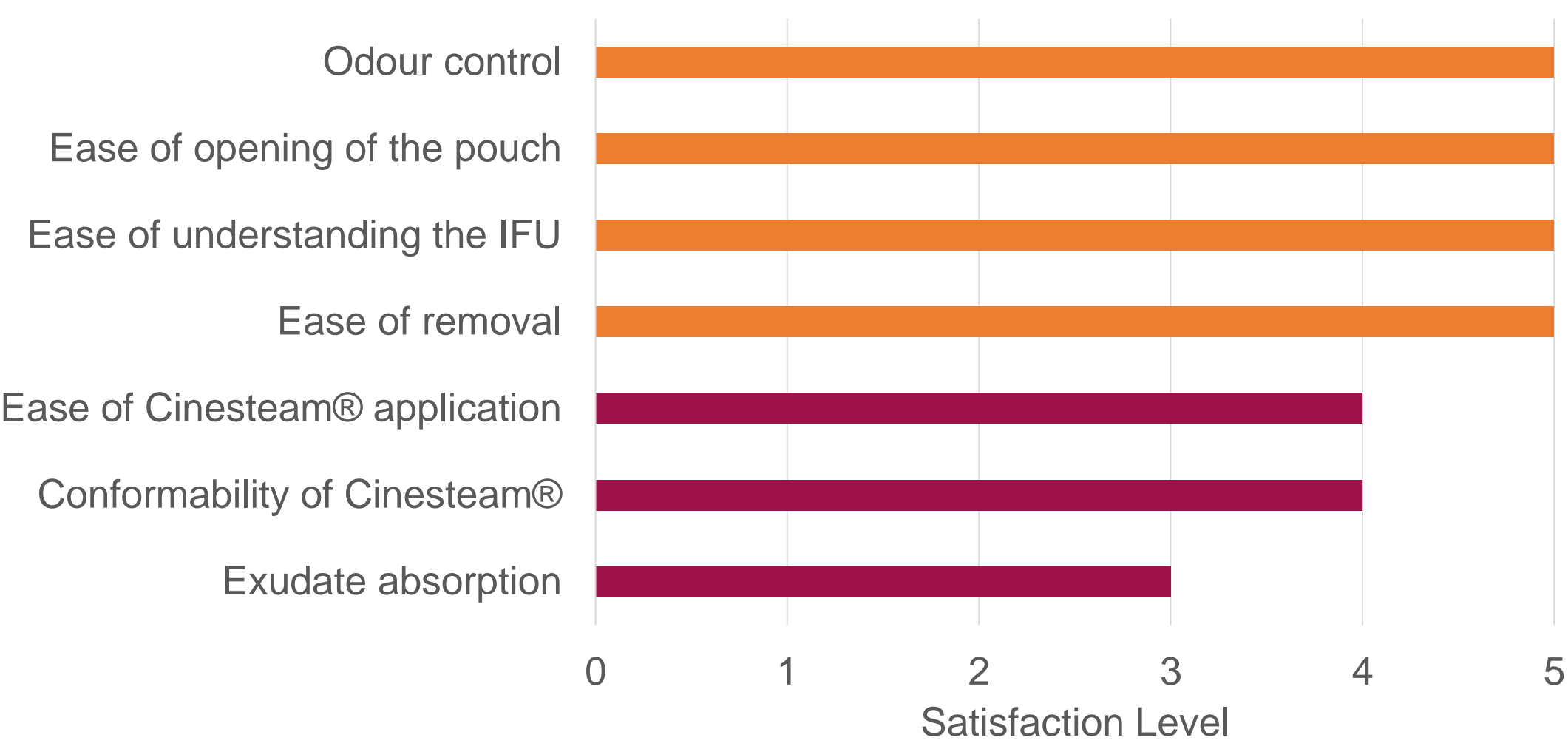


Figure 1. Evaluation of satisfaction with using Cinesteam® on a scale from 1 = "Very bad" to 5 = "Very good".

## Discussion

Cinesteam® is a non-adhesive secondary dressing designed for the dual purposes of eliminating unpleasant odours and absorbing exudates. It comprises an absorbent layer and a sterile sachet filled with cinnamon (Figure 2).

The cinnamon within the dressing adsorbs malodorous volatile organic compounds released by the wound and overlays any residual odours with the spice's natural fragrance. The specific variety of cinnamon powder utilised in the dressing was chosen for its distinct olfactory and adsorption properties, following extensive sensory perception tests and chemical analyses. The composition of the cinnamon anti-odour dressing permits air and humidity circulation, thereby preventing maceration.

Cinesteam® dressing successfully managed odours, enhancing patient well-being and offering caregivers an improved working atmosphere.

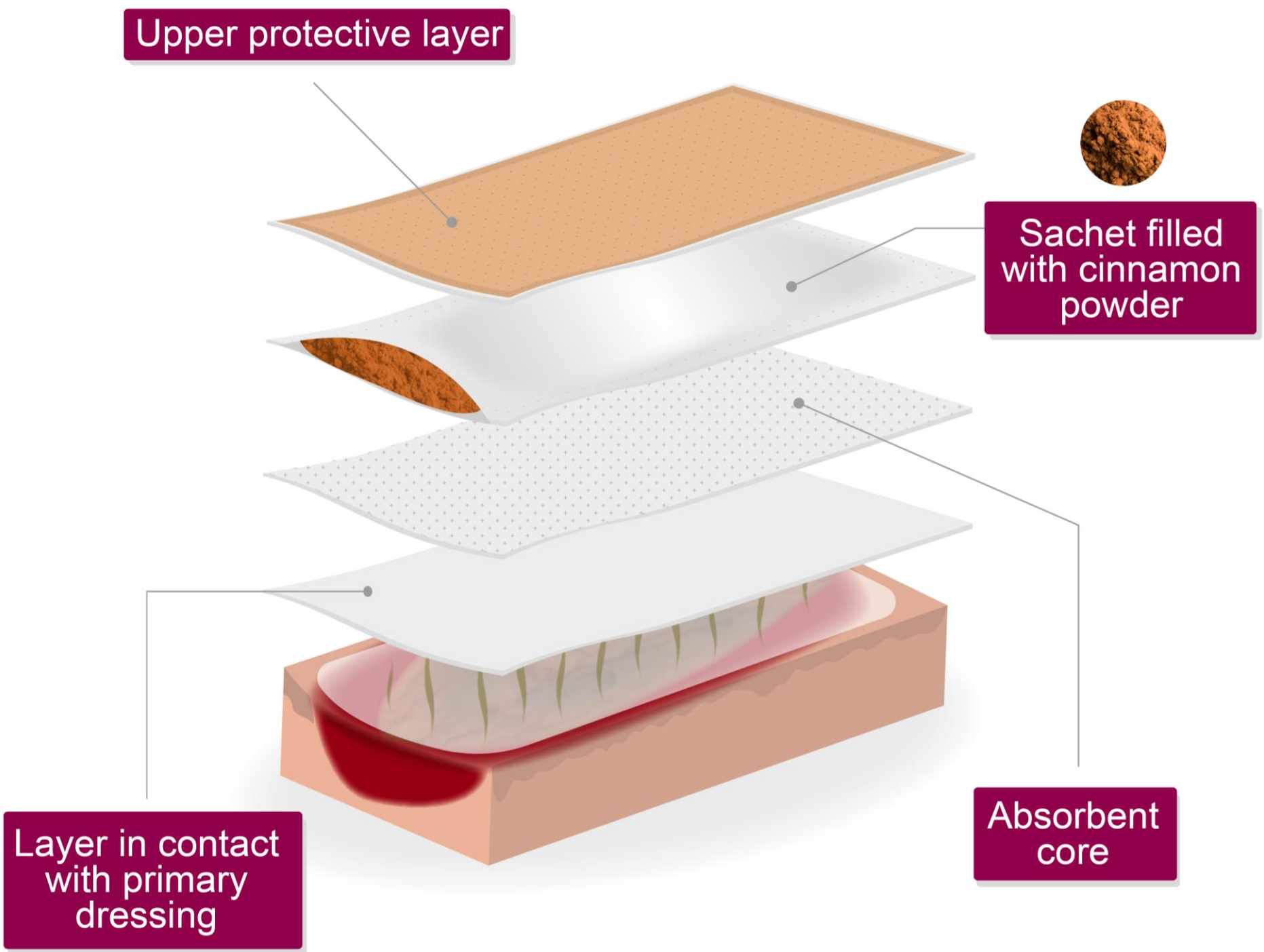


Figure 2. Composition of Cinesteam® cinnamon dressing

## Conclusion

Cinesteam® represents an efficacious approach to controlling wound odour. Its formulation, enriched with cinnamon, along with its user-friendly application, positions Cinesteam® as a valuable adjunct in managing tumour wounds.

Future research is warranted to investigate its effectiveness across a broader spectrum of chronic and complex wounds.

### Cinesteam® Review by the Patient and Healthcare Professionals

*The patient appreciated the efficacy of Cinesteam®, noting its remarkable ability to mask the wound's odour. The scent of cinnamon predominated, significantly reducing the perception of the wound's smell.*

*Healthcare professionals also experienced benefits from this effect, particularly when uncovering the wound and detecting a mild cinnamon aroma rather than the severe odour typically associated with malignant wounds.*

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