

Pigmerise™

Innovation in skin repigmentation



Pigmerise™

Pigmerise™ is a natural extract obtained from the black pepper fruit (*Piper nigrum* L.). It is a natural phytocomplex with alkaloids and volatile oils in an oleoresin. Pigmerise™ contains a high concentration of alkaloids of *Piper nigrum* L.

Pigmerise™ stimulates melanocyte proliferation and dendrite formation, resulting in skin repigmentation. Pigmerise™ is indicated for the treatment of a wide range of hypopigmentation disorders such as vitiligo and idiopathic guttate hypomelanosis.

The compounded preparation of Pigmerise™ in Fitalite™ offers an innovative and safe alternative for the treatment of hypopigmentation disorders. The formulation can be used on sensitive skin, in difficult to treat areas, and in children.

Mechanism of action

- Pigmerise™ contains volatile oils and alkaloids, such as piperine that stimulates melanocyte proliferation and dendrite formation. This leads to melanogenesis and promotes skin repigmentation in hypopigmentation disorders.
- The Fitalite™ gel cream contains phytosomes that enhance the delivery of APIs to the cells located in the deep epidermis.
- Piperine does not bind to cellular DNA and does not trigger the development of melanoma.
- Pigmerise™ is safe and effective with or without UVB therapy.

Optimizing and innovating compounding

Scientific evidence shows that black pepper alkaloids including piperine are a promising treatment for hypopigmentation disorders.

As high alkaloids concentrations are required for effective treatment, their prior solubilization in alcohol is usually needed. The use of alcohol in topical preparations can cause skin irritation and reduced patient compliance.

Fagron's R&D team developed Pigmerise™, a natural phytocomplex obtained from the black pepper fruits (*Piper nigrum* L.) that contains alkaloids and volatile oils for a synergistic effect.

Pigmerise™ is a water-soluble oleoresin that can be easily compounded in Fitalite™. There is no need for the use of alcohol in the compounding process, therefore reducing the risk of skin irritation.

The phytosomes in Fitalite™ promote the delivery of APIs to the cells located in the deep epidermis.

Pigmerise™ in Fitalite™ can be used in children and is suitable for use on sensitive skin and difficult to treat areas such as around the eyes, mouth, and genitals.

Pigmerise™ is exclusively available for compounding at Fagron.

fagron.com



Clinical evidence

Science behind Pigmerise™

The mechanism of action and beneficial properties of piperine in skin repigmentation have been extensively studied for years. Topical application of piperine, isolated or in combination with UVR therapy, has proven to be an effective repigmentation treatment for hypopigmentation disorders such as vitiligo. In 2016, several case studies with Pigmerise™ in Fitalite™ applied topically in combination with UVR therapy showed promising results for the treatment of bilateral vitiligo.

Nearly 300% stimulation of mouse melanocyte growth by *Piper nigrum* L. fruit extract and its main alkaloid, piperine.¹ (1999)

UV irradiation negatively affects melanocyte stimulatory activity and protein binding of piperine.² (2006)

Supporting in-vitro evidence for the traditional use of *Piper nigrum* L. in vitiligo treatment.³ (2007)

Treatment with piperine shows a pigmentation response in mice, with clinically better results than UVR alone.⁴ (2008)

Efficacy of topical piperine treatment with and without UVB therapy verified in patients with bilateral vitiligo.⁵ (2009)

Efficacy of Pigmerise™ in Fitalite™ topical treatment combined with UVB therapy confirmed in patients with bilateral vitiligo.⁶ (2016)

Case studies

Protocol

Menchini studied 20 patients, aged between 18 and 62 years, suffering from bilateral vitiligo. Patients were treated topically with Pigmerise™ in Fitalite™ once-daily, combined with NB-UVB therapy three times a week for six months. The affected skin area ranged between 5% and 70% of the total skin surface. None of the patients received any vitiligo treatment in the three months prior to the start of the case study.⁶

Results

Patient 1

Woman, 20 years old, suffering from bilateral vitiligo for 10 years. After 6 months of treatment, more than 95% repigmentation was obtained.



Before treatment



After 6 months of treatment



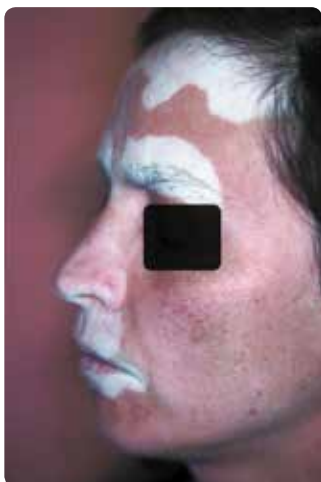
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2. Soumyanath A, et al. UV irradiation affects melanocyte stimulatory activity and protein binding of piperine. *Photochem Photobiol.* 2006 Nov-Dec;82(6):1541-8.
3. Lin Z, et al. Amides from *Piper nigrum* L. with dissimilar effects on melanocyte proliferation in-vitro. *J Pharm Pharmacol.* 2007 Apr;59(4):529-36.
4. Faas L, et al. In vivo evaluation of piperine and synthetic analogues as potential treatments for vitiligo using a sparsely pigmented mouse model. *Br J Dermatol.* 2008 May;158(5):941-50.
5. Menchini G. Testing a piperine cream with and without ultraviolet B phototherapy in 75 patients affected by bilateral vitiligo, GISV- Italian Group for the Study and Treatment of Vitiligo. 2009.
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Clinical evidence

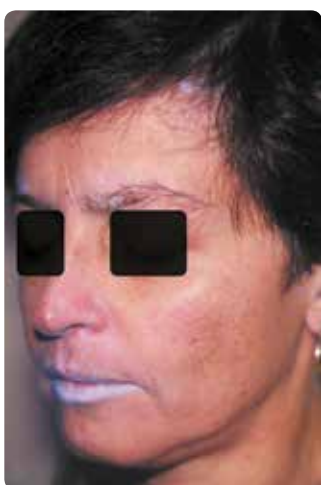
Results

Patient 2

Woman, 41 years old, suffering from bilateral vitiligo for more than 20 years. After 6 months of treatment, 90% repigmentation was obtained.



Before treatment



After 6 months of treatment



Patient 3

Woman, 60 years old, suffering from bilateral vitiligo for more than 15 years. After 6 months of treatment, 40% repigmentation was obtained.

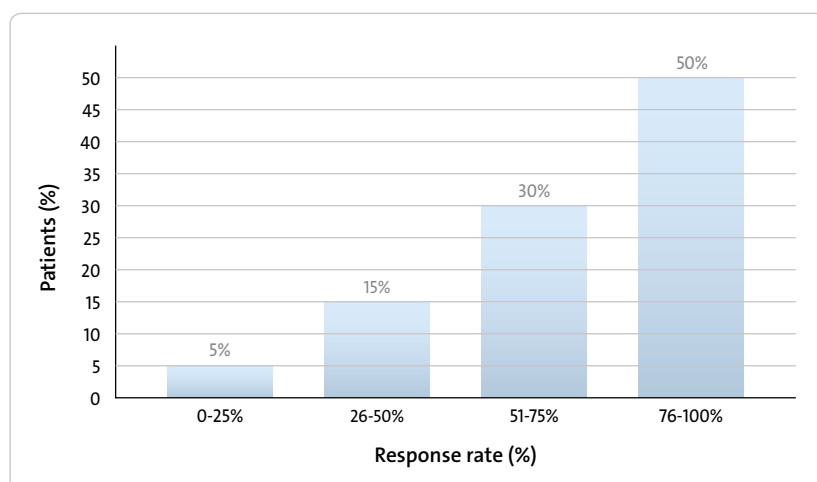


Before treatment



After 6 months of treatment

Subdivision of patients in 4 response groups



Patients were subdivided in 4 response groups:

- In 20% of the patients, a response rate lower than 50% was observed.
- 80% of the patients showed repigmentation of more than 50% of the affected area.

50% of all patients showed a repigmentation rate between 76 and 100%.

Pigmerise™ in Fitalite™

Safety

Unlike psoralens, piperine has proven to not interact with DNA and therefore does not trigger the development of melanoma.² The skin irritation study performed by the University of Ferrara (Italy) shows that Pigmerise™ in Fitalite™ under occlusive conditions is not irritating to the skin, making it a safe alternative for the treatment of hypopigmentation disorders.

Stability

Pigmerise™ is exclusively available for compounding preparations at Fagron. Physical and microbial stability studies show that Pigmerise™ in Fitalite™ remains stable at room temperature (15-25 °C) for 6 months after compounding.

Pigmerise™

Innovation in skin repigmentation

- Contains piperine that stimulates melanocyte proliferation and dendrite formation resulting in skin repigmentation
- Water-soluble oleoresin that can be easily compounded with Fitalite™
- Standardized amount of piperine and volatile oils
- No need for alcohol use in the compounding process, allowing application on sensitive skin areas



Fitalite™

Natural gel cream base

- Elegant, light, non-greasy skin feel
- Gentle hydration and alcohol free
- Contains natural phytosomes that enhance delivery of APIs into deeper skin layers
- Suitable for sensitive skin and difficult to treat areas such as around the eyes, mouth, and genitals



Instructions for use

- Apply Pigmerise™ in Fitalite™ gel cream on the affected area once daily at night.
- A thin layer of the preparation should be applied to avoid a transient burning sensation. Use the fingertip unit system to determine the amount of formulation required for the affected area.
- Wait approximately 20 minutes before applying any other topical treatments or cosmetics.
- Rinse the Pigmerise™ in Fitalite™ preparation off the affected area before exposing to UVR if applicable (in case of combined UVR therapy or exposure to sunlight).

Formulation

Pigmerise™ in Fitalite™

Pigmerise™ 10 g
Fitalite™ qs 50 g
Airless dispenser (50 ml) 1 unit

Please refer to the free Compounding Matters database at fagron.com for more formulations.



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