



NATURAL ACHE RELIEF

 **indena**<sup>®</sup>  
INDUSTRIA  
DERIVATI  
NATURALI

HEALTH - FOOD

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**MITIDOL**<sup>®</sup>  
ZINGIBER AND ACMELLA  
STANDARDIZED EXTRACTS COMBINATION

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## WHAT IS MITIDOL®?

**MITIDOL®** is a formulation of two standardized botanical extracts, namely *Zingiber officinale* and *Acmella oleracea* effective as natural adjuvant in ache management.

## SPECIFICATIONS

**MITIDOL®** is standardized to contain:

**9.6-11.8% *Zingiber officinale*** CO<sub>2</sub> extract  
(2.4-3.9% total gingerols and shogaols by HPLC)

**1.9-2.4% *Acmella oleracea*** st. extract  
(0.30-0.60% spilanthol by HPLC)

## SCIENTIFIC EVIDENCE

**MITIDOL®** is supported by a human efficacy study, and two *in vitro* mechanistic studies.

## SUGGESTED USE AND DOSE

**MITIDOL®** is a yellowish fine powder with good technological properties (e.g. density, flowability), easy to formulate and mainly suitable for capsules and tablets.

Suggested dose: **350 mg twice a day**

### References

- <sup>1</sup> International patent application WO2018/108549
- <sup>2</sup> Dugasani, Swarnalatha, et al. Journal of ethnopharmacology 127.2 (2010): 515-520.
- <sup>3</sup> Dedov, Vadim N., et al. British journal of pharmacology 137.6 (2002): 793-798.
- <sup>4</sup> Grzanna et al. Journal of medicinal food 4.2 (2005): 125-132.
- <sup>5</sup> Kiuchi, Fumiuyuki, et al. Chemical and Pharmaceutical Bulletin 40.2 (1992): 387-391.
- <sup>6</sup> Tjendraputra, Effie, et al. Bioorganic chemistry 29.3 (2001): 156-163.
- <sup>7</sup> Dubey, Suchita, et al. Advances in pharmacological sciences 2013 (2013).
- <sup>8</sup> Rondanelli, Mariangela, et al. FitoTerapia (2019): 104419.
- <sup>9</sup> Wu L-C et al. J Agric Food Chem. 2008;56(7):2341-2349
- <sup>10</sup> Bakondi, Edina, et al. International journal of integrative sciences 20.17 (2019): 4308.
- <sup>11</sup> Rondanelli M., et al. Pain Medicine (2019)
- <sup>12</sup> Indena manuscript in preparation
- <sup>13</sup> Indena manuscript in preparation

## WHAT MAKES MITIDOL® UNIQUE?

**MITIDOL®** is a proprietary<sup>1</sup> association of two standardized botanical extracts able to support ache management.

The innovative composition exploits the properties of two traditionally used plants:

- ***Zingiber officinale***
  - gingerols and shogaols are the main extract components;
  - traditionally used, the plant has a vast scientific literature, with studies documenting their ability to modulate many enzymes involved in the healthy inflammatory response;<sup>2-6</sup>
- ***Acmella oleracea***
  - Indena proprietary organic plantations in Sardinia;
  - fully sustainable source of alkylamides;
  - compliant to main worldwide regulations;
  - the main component, ***spilanthol***, is effective at low dosages and in literature has shown a plethora of beneficial effects.<sup>7-10</sup>

A one-month human efficacy study on joint challenges on **MITIDOL®** showed:<sup>11</sup>

- optimization of knee functionality confirmed in two different tests: Lhysolm and Womac scale
- effective on knee ache intensity already after 10 days of supplementation
- improvement in Quality of Life score (SF-36 questionnaire)
- improvement in physical activity
- healthy oxidative response control, possibly causing inflammation:
  - 12.7% Erythrocyte Sedimentation Rate
  - 36.4% high sensitivity CRP

Two mechanistic studies suggested that, **MITIDOL®** could selectively act on cannabinoid CB2 receptors compared to competitors like *Piper nigrum*, *Commiphora mhirra* and palmitoylethanolamide, and as a possible FAAH inhibitor.<sup>12,13</sup>

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