Papain

Source: https://webprod.hc-sc.gc.ca/nhpid-bdipsn/atReq?atid=papain2⟨=eng

Extracted: 2025-08-26T06:35:06.066428

Papain Help on accessing alternative formats, such as Portable Document Format (PDF), Microsoft Word and PowerPoint (PPT) files, can be obtained in the alternate format help section. (PDF Version - 90 KB) This monograph is intended to serve as a guide to industry for the preparation of Product Licence Applications (PLAs) and labels for natural health product market authorization. It is not intended to be a comprehensive review of the medicinal ingredient. Notes Text in parentheses is additional optional information which can be included on the label at the applicant's discretion. The solidus (/) indicates that the terms and/or statements are synonymous. Either term or statement may be selected by the applicant on the label. Date June 27, 2025 Proper name(s), Common name(s), Source information Table 1. Proper name(s), Common name(s), Source information Proper name(s) Common name(s) Source information Source material(s) Part(s) Papain Papain Carica papaya Fruit Leaf References: Proper name: IUBMB 2024; Common name: IUBMB 2024; Source information: RSC 2024; USDA 2024; Morton 1987. Route of Administration Oral Dosage Form(s) This monograph excludes foods or food-like dosage forms as indicated in the Compendium of Monographs Guidance Document. Acceptable dosage forms for oral use are indicated in the dosage form drop-down list of the web-based Product Licence Application form for Compendial applications. Note: Liquid and liquid-containing dosage forms (e.g., capsule, soft; spray) are not acceptable as Class II applications when papain is combined with non-enzymatic ingredients as the enzyme activity may be impacted. These products may be submitted as a Class III application. Use(s) or Purpose(s) Digestive enzyme (RSC 2024). Dose(s) Subpopulation(s) Adults 18 years and older Quantity(ies) Not to exceed 7,200,000 FCC PU of enzymatic activity, per day; and 2,400,000 FCC PU per single dose (Martin et al. 2002; Dale et al. 2001). The Quantity per dosage unit must be the enzymatic activity (FCC unit). The quantity of the enzymatic preparation in mg or ml should also be included as additional quantity. For multi-ingredient products containing both papain and bromelain (fruit and/or stem), the combined proteolytic activity should not exceed the maximum proteolytic activity of 130,000, 000 FCC PU per day. One papain unit (PU) is defined as that quantity of enzyme that liberates the equivalent of 1 microgram of tyrosine per hour under the conditions of the assay (FCC 2024). One FCC papain unit is approximately equivalent to one USP papain unit (1 FCC PU ≈ 1 USP PU). Direction(s) for use Take with a meal/food. Duration(s) of Use Ask a health care practitioner/health care provider/health care professional/doctor/physician for prolonged use. Risk Information Caution(s) and warning(s) Ask a health care practitioner/health care provider/health care professional/doctor/physician before use if you are pregnant or breastfeeding. Ask a health care practitioner/health care provider/health care professional/doctor/physician before use if you have gastrointestinal lesions/ulcers or are having surgery (Brayfield and Cadart 2024). Ask a health care practitioner/health care provider/health care professional/doctor/physician before use if you are taking blood thinners or anti-inflammatory medications (Brayfield and Cadart 2024). Ask a health care practitioner/health care provider/health care professional/doctor/physician before use if you have an allergy to latex or fruits (such as avocado, banana, chestnut, passion fruit, fig, melon, mango, kiwi, pineapple, peach, and tomato) (US FDA 2008; APhA 2006; Brehler et al. 1997). Contraindication(s) No statement required. Known adverse reaction(s) Stop use if hypersensitivity/allergy occurs (Brayfield and Cadart 2024; HC 2011; US FDA 2008). Non-medicinal ingredients Must be chosen from the current Natural Health Products Ingredients Database (NHPID) and must meet the limitations outlined in the database. Storage conditions Must be established in accordance with the requirements described in the Natural Health Products Regulations . Specifications The finished product must be established in accordance with the requirements described in the Natural and Non-prescription Health Products Directorate (NNHPD) Quality of Natural Health Products Guide. The medicinal ingredient must comply with the requirements outlined in the NHPID. Details of the manufacturing of the enzyme at the raw material stage should include fermentation medium and the isolation process of the medicinal ingredient. The specifications must include testing for enzymatic activity of the medicinal ingredient at appropriate stages of formulation and manufacturing using the assay outlined in the current Food Chemicals Codex (FCC): PLANT PROTEOLYTIC ACTIVITY. Where published methods are not suitable for use, manufacturers will use due diligence to ensure that the enzymes remain active to the end of their shelf life indicated on the product label. EXAMPLE OF PRODUCT FACTS: Consult the Guidance

Document, Labelling of Natural Health Products for more details. References Cited APhA 2006: Berardi RR, Kroon LA, McDermott JH, Newton GD, Oszko MA, Popovich NG, Remington TL, Rollins CJ, Shimp LA, Tietze KJ, editors. Handbook of Nonprescription Drugs: An Interactive Approach to Self-Care. 15th edition. Washington (DC): APhA Publications; 2006. Brayfield A, Cadart C, editors. Martindale: The Complete Drug Reference. London (GB): Pharmaceutical Press; 2024. [Accessed 2024 November 21]. Available from: https://www.medicinescomplete.com/#/browse/martindale Brehler R, Theissen U, Mohr C, Luger T. "Latex-fruit syndrome": frequency of cross- reacting IgE antibodies. Allergy 1997;52(4):404-410. Dale PS, Tamhankar CP, George D, Daftary GV. Co-medication with hydrolytic enzymes in radiation therapy of uterine cervix: evidence of the reduction of acute side effects. Cancer Chemotherapy and Pharmacology 2001;47(Suppl):S29-S34. FCC 2024: Food Chemicals Codex. 14th edition. Rockville (MD): The United States Pharmacopeial Convention; 2024. HC 2011: Canada Vigilance Adverse Reaction Online Database. Search Criteria: Papain. [Accessed 2024 November 28]. Available from: https://cvp-pcv.hc-sc.gc.ca/arq-rei/index-eng.jsp IUBMB 2024: IUBMB Enzyme Nomenclature. London (GB): Queen Mary, University of London; 2024 [Accessed 2024 November 28]. Available from: http://www.chem.qmul.ac.uk/iubmb/enzyme/EC3/4/22/2.html Martin T, Uhder K, Kurek R, Roeddiger S, Schneider L, Vogt HG, Heyd R, Zamboglou N. Does prophylactic treatment with proteolytic enzymes reduce acute toxicity of adjuvant pelvic irradiation? Results of a double-blind randomized trial. Radiotherapy and Oncology 2002;65:17-22. Morton J. Papaya. In: Morton JF. Fruits of Warm Climates. Miami (FL): Julia F. Morton; 1987; p. 336-346. [Accessed 2024 November 28]. Available from: http://www.hort.purdue.edu/newcrop/morton/papaya_ars.html RSC 2024: Royal Society of Chemistry: The Merck Index Online [Accessed 2024 November 26]. Available from: https://merckindex.rsc.org/ USDA 2024: United States Department of Agriculture, Agricultural Research Service (USDA ARS), Germplasm Resources Information Network (GRIN) - Global. U.S. National Plant Germplasm System. [Accessed 2024 November 14]. Available from: https://npgsweb.ars-grin.gov/gringlobal/taxon/taxonomysearch US FDA 2008: Topical Drug Products Containing Papain; Enforcement Action Dates. Department of Health and Human Services. Docket No. FDA-2008-N-0481. References Reviewed Dörr W, Herrmann T. Efficacy of Wobe-Mugos® E for reduction of oral mucositis after radiotherapy. Strahlentherapie und Onkologie 2007;183:121-127. Repchinsky C, editor-in-chief. Patient Self-Care: Helping Patients Make Therapeutic Choices, 1st edition. Ottawa (ON): Canadian Pharmacists Association; 2003. Report a problem on this page Date modified: 2019-03-01

MEDICINAL INGREDIENT(S)

Must be chosen from the current Natural Health Products Ingredients Database (NHPID) and must meet the limitations outlined in the database. Storage conditions Must be established in accordance with the requirements described in theNatural Health Products Regulations.

DOSAGE FORM(S)

Acceptable dosage forms for oral use are indicated in the dosage form drop-down list of the web-based Product Licence Application form for Compendial applications. Note:Liquid and liquid-containing dosage forms (e.g., capsule, soft; spray) are not acceptable as Class II applications when papain is combined with non-enzymatic ingredients as the enzyme activity may be impacted. These products may be submitted as a Class III application.

RISK INFORMATION

Caution(s) and warning(s) Ask a health care practitioner/health care provider/health care professional/doctor/physician before use if you are pregnant or breastfeeding.Ask a health care practitioner/health care provider/health care professional/doctor/physician before use if you have gastrointestinal lesions/ulcers or are having surgery (Brayfield and Cadart 2024).Ask a health care practitioner/health care provider/health care professional/doctor/physician before use if you are taking blood

thinners or anti-inflammatory medications (Brayfield and Cadart 2024).Ask a health care practitioner/health care provider/health care professional/doctor/physician before use if you have an allergy to latex or fruits (such as avocado, banana, chestnut, passion fruit, fig, melon, mango, kiwi, pineapple, peach, and tomato) (US FDA 2008; APhA 2006; Brehler et al. 1997). Contraindication(s) No statement required. Known adverse reaction(s) Stop use if hypersensitivity/allergy occurs (Brayfield and Cadart 2024; HC 2011; US FDA 2008).

NON-MEDICINAL INGREDIENTS

Must be chosen from the current Natural Health Products Ingredients Database (NHPID) and must meet the limitations outlined in the database. Storage conditions Must be established in accordance with the requirements described in theNatural Health Products Regulations.

STORAGE CONDITION(S)

Must be established in accordance with the requirements described in theNatural Health Products Regulations.

SPECIFICATIONS

The finished product must be established in accordance with the requirements described in the Natural and Non-prescription Health Products Directorate (NNHPD) Quality of Natural Health Products Guide.The medicinal ingredient must comply with the requirements outlined in the NHPID.Details of the manufacturing of the enzyme at the raw material stage should include fermentation medium and the isolation process of the medicinal ingredient.The specifications must include testing for enzymatic activity of the medicinal ingredient at appropriate stages of formulation and manufacturing using the assay outlined in the current Food Chemicals Codex (FCC): PLANT PROTEOLYTIC ACTIVITY.Where published methods are not suitable for use, manufacturers will use due diligence to ensure that the enzymes remain active to the end of their shelf life indicated on the product label. EXAMPLE OF PRODUCT FACTS:

REFERENCES

Route of Administration Oral

Proper name(s)	Common name(s)	Source information	
Source material(s)	Part(s)		
Papain	Papain	Carica papaya	FruitLeaf