

Branched Chain Amino Acid Kinesio PVP Gel Tape from Extract of Pea (*Pisum sativum* L.) Based on Ultrasound-Assisted Extraction Technology

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Abstract : Modern sports competition as a consequence of the increase in the value of the business and entertainment in the field of sport has been demanding athletes to always have excellent physical endurance performance. Physical exercise is done in a long time, and intensive may pose a risk of muscle tissue damage caused by the increase of the enzyme creatine kinase. Branched Chain Amino Acids (BCAA) is an essential amino acid that is composed of leucine, isoleucine, and valine which serves to maintain muscle tissue, keeping the immune system, and prevent further loss of coordination and muscle pain. Pea (*Pisum sativum* L.) is a kind of leguminous plants that are rich in Branched Chain Amino Acids (BCAA) where every one gram of protein pea contains 82.7 mg of leucine; 56.3 mg isoleucine; and 56.0 mg of valine. This research aims to develop Branched Chain Amino Acids (BCAA) from pea extract is applied in dosage forms Gel PVP Kinesio Tape technology using Ultrasound-assisted Extraction. The method used in the writing of this paper is the Cochrane Collaboration Review that includes literature studies, testing the quality of the study, the characteristics of the data collection, analysis, interpretation of results, and clinical trials as well as recommendations for further research. Extraction of BCAA in pea done using ultrasound-assisted extraction technology with optimization variables includes the type of solvent extraction (NaOH 0.1%), temperature (20-250C), time (15-30 minutes) power (80 watt) and ultrasonic frequency (35 KHz). The advantages of this extraction method are the level of penetration of the solvent into the membrane of the cell is high and can increase the transfer period so that the BCAA substance separation process more efficient. BCAA extraction results are then applied to the polymer PVP (Polyvinylpyrrolidone) Gel powder composed of PVP K30 and K100 HPMC dissolved in 10 mL of water-methanol (1: 1) v / v. Preparations Kinesio Tape Gel PVP is the BCAA in the gel are absorbed into the muscle tissue, and joints through tensile force then provides stimulation to the muscle circulation with variable pressure so that the muscle can increase the biomechanical movement and prevent damage to the muscle enzyme creatine kinase. Analysis and evaluation of test preparation include interaction, thickness, weight uniformity, humidity, water vapor permeability, the levels of the active substance, content uniformity, percentage elongation, stability testing, release profile, permeation in vitro and in vivo skin irritation testing.

Keywords : branched chain amino acid, BCAA, Kinesio tape, pea, PVP gel, ultrasound-assisted extraction

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