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ANTINOCICEPTIVE EFFECT OF STIGMASTEROL ON FORMALIN-INDUCED RAT

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ABSTRACT

Pain has been defined as an unpleasant sensory and emotional experience associated with actual or potential tissue damage. Nowadays we use analgesic or NSAIDs to alleviate pain but the usage of NSAIDs is associated with a lot of side effects. Therefore, it is believed to have less side effects by using natural sources as medicine to treat pain. This study was conducted to determine the antinociceptive effect of stigmasterol on formalin-induced inflammation in rats. Formalin induce pain in two distinct phases; phase 1 and phase 2. Phase 1 is an acute pain or neurogenic pain that will start from 0 to 5 minutes. Phase 2 is an inflammation pain observed from 5 to 60 minutes. Stigmasterol (10, 20 and 40 mg/kg) was given intraperitoneally 30 minutes prior to formalin injection intradermally on the plantar surface of the hind paw of each rat. Indomethacin is used as a reference drug in this study. The frequency of licking and biting were recorded up to 60 minutes. From our results, stigmasterol (40 mg/kg) and indomethacin (10 mg/kg) exhibit significant reduction of pain in phase 2. However, there was no significant difference in phase 1 between 10mg, 20mg and 40mg of stigmasterol in percentage of inhibition.. In conclusion, stigmasterol (40 mg/kg, i.p.) reveals antinociceptive effect by inhibiting inflammatory mediators at the late phase and further studies need to be conducted to determine the exact mechanism of action.

CHAPTER 1: INTRODUCTION

1.1 BACKGROUND

Throughout history, mankind has been develling with various kind of medicine and has time progresses they developed more effective medicine to alleviate pain or discomfort produced by illnesses. Pain is been defined as an unpleasant sensory and emotional experience associated with actual or potential tissue damage, or described in terms of such damage (Calixto et al., 2000).Examples of diseases that can cause pain are arthritis, headache and low back pain Recent studies have shown that 22% of primary care patients suffered from chronic pain and in some cases the percentage rises to 50% which is related to significant impairment of social functioning and quality of life (Bahmani et al, 2014).

Pain can be categorised into transient, acute and chronic pain (Calixto et al., 2000) . In the transient type, the activation of nociceptive transducers is elicited in the absence of any tissue damage. In the acute type, the activation of nociceptive at the site cause the damage of local tissue. The acute pain usually lasts for less than 1 month but sometimes can lasts until 6 months. Chronic pain is usually triggered by a diseases or injury and the duration is more than 6 months.

Besides using a conventional drug in the market, medicinal plants are believed to be an important source of new chemical substances with potential therapeutic effects.