

SEMI-SYNTHETIC NON-STEROIDAL ANTI-INFLAMMATORY DRUGS

Pain is defined as an unpleasant sensory and emotional experience associated with confirmed or potential lesions. In the United States, the direct and indirect costs of pain are estimated at 150 billion dollars/year.



Source: www.sxc.hu

Research into potential targets



Preclinical research

Clinical research

Registration

Market

▶ Drug

Description

Semi-synthetic compounds of vegetable extracts from a species endemic to the Atlantic Forest, which have analgesic and anti-inflammatory properties, and the process for obtaining them.

Problem

Pain is a sensation based on environmental stimuli transmitted to and interpreted by the brain. Nerve and tissue damage and inflammation can alter the normal perception of pain, causing a hyperalgesic state.

Non-steroidal anti-inflammatory drugs (NSAIDs) have been used for the treatment of pain and fever for over 3500 years. NSAIDs are indicated for mild to moderate pain and, due to their anti-inflammatory effect, can be used for the treatment of diseases such as Rheumatoid Arthritis.

It is estimated that more than 2 million people suffer from chronic pain in the United States, 20 to 30% of Americans consume NSAIDs once a year, and 1 to 2% use NSAIDs daily.

The Brazilian Society for the Study of Pain considers pain the 5th vital sign in hospital care.

Proposed Solution

Semi-synthetic compounds analogous to natural compounds with stronger analgesic and anti-inflammatory properties than dipyron and indomethacine, which can be used in phytotherapeutic and conventional pharmaceutical compositions.

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Benefits

- Extract yields: 20 – 80%
- Degree of purity of the semi-synthetic compounds: 90%
- Pharmacological activity of the isolated compounds tested on Swiss mice by means of abdominal contortions induced by acetic acid.

Substance	DL ₅₀	Maximum effect
Dypirone	0,64 µmol/kg	97%
Indomethacine	0,78 µmol/kg	90%
MMICO3	8,22 µmol/kg	100%
MMICO7	13,24 µmol/kg	94,5%

- At dosages lower than those of dipyron and indomethacine, the compounds present similar or higher analgesic and anti-inflammatory activity.
- Compounds with varying analgesic and anti-inflammatory profiles.

Market Potential

Generic medications are a strong market niche for NSAIDs. The value of this niche was US\$ 118 million in 2007.

(Valor Econômico, 2009)

Two of the top players in this segment reported sales of US\$ 437 million and US\$ 628 million, respectively, in 2009.

