



# HerbClip™

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**FILE: ■ French Maritime Bark (*Pinus pinaster*)**

**■ Pycnogenol®**

**■ COX Activity**

**HC 030661-310**

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**RE: Pycnogenol's Action on Cox Inhibition Examined in Small Study**

Schafer A, Chovanova Z, Muchova J, Sumegova K, Liptakova A, Durackova Z, Hogger P. Inhibition of COX-1 and COX-2 activity by plasma of human volunteers after ingestion of French maritime pine bark extract (Pycnogenol). *Biomed Pharmacother.* Jan. 2006;60(1):5-9.

Pycnogenol® (Horphag Research Ltd., United Kingdom) is a proprietary extract of French maritime pine bark (*Pinus pinaster*) that contains oligomeric proanthocyanidins, a class of chemical compounds that have antioxidant and free radical scavenging activity.<sup>1</sup> In vivo and clinical studies show that pycnogenol may have analgesic and anti-inflammatory activities, possibly due to metabolites of pycnogenol constituents. The purpose of this study was to determine if these possible anti-inflammatory and analgesic activities are mediated by the inhibition of cyclooxygenase (COX)-1 and COX-2 activity.

The study was conducted in Bratislava, Slovak Republic and Wurzburg, Germany and enrolled two groups of healthy subjects aged 18-30. After 24 hours of a flavonoid-free diet, the first group of subjects (n=5) took 200 mg pycnogenol tablets for 5 days, and the second group (n=10) took a single 300 mg pycnogenol tablet. Inhibition of COX-1 and COX-2 activity was determined by measuring COX activity in the subject's blood samples. In the first group, a non-significant inhibition of COX-1 activity was observed in 3 of the 5 subjects, and COX-2 inhibition was observed in 2 subjects. There was a large variation of COX-1 and COX-2 inhibition among the subjects in the first group, with 3 subjects showing very little to no activity. However, the overall ratio of COX-2/COX-1 activity was above 1 for all 5 subjects, showing that pycnogenol may cause "...non-selective inhibition of both COX-1 and COX-2." The second group of subjects, which received a single 300 mg pycnogenol dose, showed inhibitory activity 30 minutes after receiving the dose. Statistical analysis revealed a significant inhibition in the average COX-1 (P<0.02) and COX-2 (P<0.002) activity for the group. As in the first group, a significant variation in the COX inhibitory activity was observed within the group. The ratio of COX-1/COX-2 inhibitory

activity was above 1 for all the participants, and the average ratio was  $10 \pm 6$  for the group, which shows a non-selective inhibition of COX activity.

This very small study suggests that pycnogenol is a non-selective inhibitor of COX-1 and COX-2 activity, which may explain pycnogenol's observed anti-inflammatory and analgesic effects. However, the chemical compounds or metabolites responsible for this activity still need to be identified. In addition, rigorously designed clinical trials, enrolling more subjects, are needed to confirm pycnogenol's anti-inflammatory and analgesic effects.

—*Marissa Oppel, MS*

#### **References**

1. Robbers JE, Speedie MK, Tyler VE. *Pharmacognosy and Pharmacobiotechnology*. Baltimore, MD: Williams & Wilkins; 1996.

The American Botanical Council has chosen not to reprint the original article.

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