

Effects of prodelphinidins isolated from *Ribes nigrum* leaves on chondrocyte metabolism and COX activity

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Black-currant (*Ribes nigrum* L.) leaves are traditionally used in Europe for the treatment of rheumatic disease. The anti-inflammatory activity (in carrageenan-induced rat paw-oedema) is mainly due to prodelphinidins [1]

Another articular disease, osteoarthritis, is the clinical expression of the loss of cartilage function. COX inhibitors are widely used in the treatment of such pathologies for their beneficial effects on inflammation but often produce a negative activity on cartilage synthesis.

In this study, we determined the effect of different prodelphinidins isolated from *Ribes nigrum* leaves, on the proteoglycans, type II collagen and prostaglandin E<sub>2</sub> productions by differentiated human chondrocytes cultivated in long term (12 days) and in clusters as well as their inhibition potential on COX-1 and COX-2 *in vitro* [2, 3]. Galocatechin trimer (GC-GC-GC) showed the higher stimulation of PGs and coll. II production (1 µg ml<sup>-1</sup>) and the synthesis of PGE<sub>2</sub> was significantly reduced by galocatechin dimer (GC-GC), galocatechin-epigallocatechin (GC-EGC) and GC-GC-GC at 10 and 100 µg ml<sup>-1</sup>. The inhibition of PGE<sub>2</sub> synthesis was confirmed by the *in vitro* test on purified COX enzymes, showing the selectivity of prodelphinidins on COX-2 (see table).

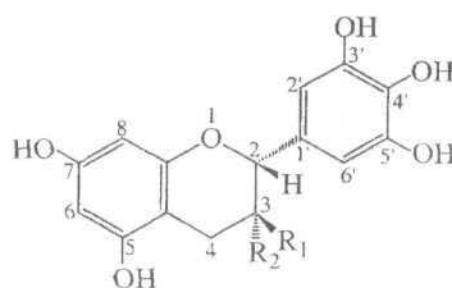
Our studies suggest that the prodelphinidins fractions from *R. nigrum* may be useful as an additive agent in the prevention of osteoarthritis.

	COX-1 Inhibition (%)*	COX-2 Inhibition (%)*
Indomethacin 10 <sup>-7</sup>	66.47±1.41	58.12±4.18
Nimesulide 10 <sup>-4</sup> M	0.88±3.09	29.60±4.77
GC, 10 <sup>-4</sup> M	52.73±6.52	67.76±2.50
GC, 10 <sup>-5</sup> M	8.05±7.41	44.46±4.91
GC, 10 <sup>-6</sup> M	-1.50±3.46	4.77±4.74
GC-GC, 10 <sup>-4</sup> M	56.87±1.11	67.34±6.29
GC-GC, 10 <sup>-5</sup> M	8.11±13.87	53.19±4.02
GC-GC, 10 <sup>-6</sup> M	-0.79±7.50	3.00±3.01
GC-EGC, 10 <sup>-4</sup> M	51.39±6.57	65.60±2.48
GC-GC-GC, 10 <sup>-4</sup> M	53.42±11.8	65.13±7.68

\*Results expressed as inhibition percentage of PGE<sub>2</sub> production

References

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2. Franchimont P., Bassleer C., Angenot L., Tits M., (1997) N° Patent: US5670538: Use of prodelphinidins for obtaining medicaments intended for the treatment of arthrosis
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GC, galocatechin R<sub>1</sub>=OH R<sub>2</sub>=H  
EGC, epigallocatechin R<sub>1</sub>=H R<sub>2</sub>=OH