

OLEUROPEIN or RUTIN consumption decreases the spontaneous development of OA in HARTLEY GUINEA PIG

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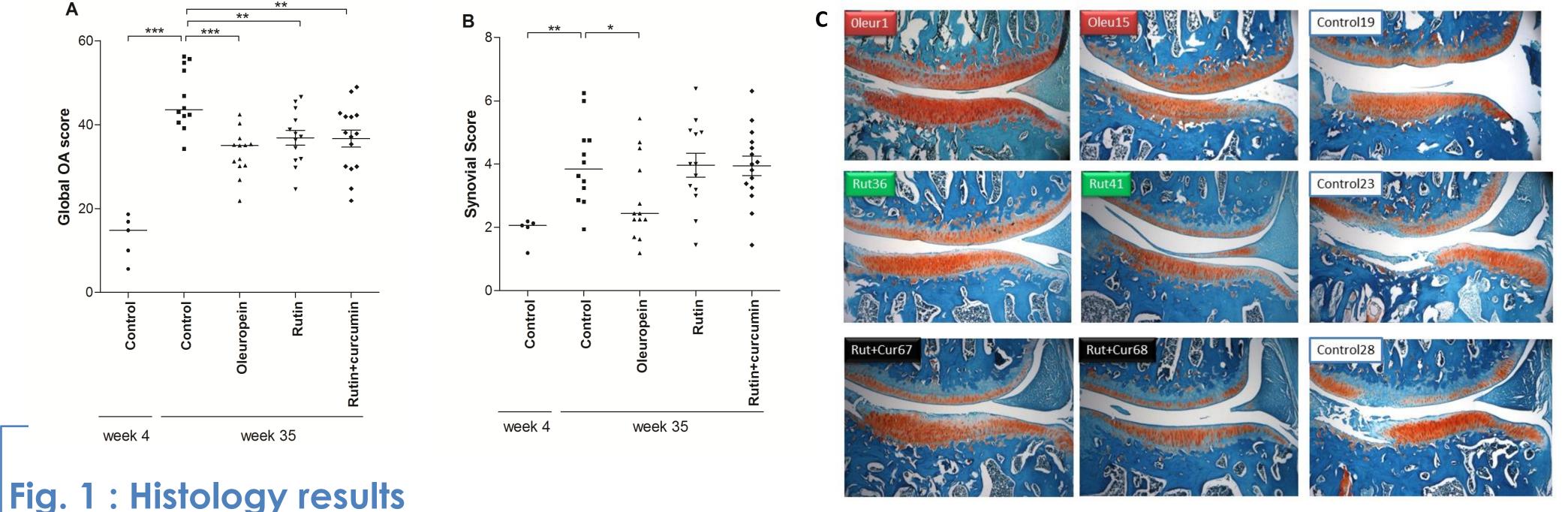
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PURPOSE. To assess the potential protective effect of oleuropein and rutin, two polyphenols found in olive oil, fruits or vegetables, on osteoarthritis development.

м в т н о р s. Sixty 4 weeks old Hartley guinea pig were randomized in four groups and received daily during 31 weeks either standard guinea pig food (control group) or a standard guinea pig food enriched with oleuropein, rutin or rutin/curcumin association. Animals were weighted each week and blood sampled every 6 weeks and at the time of euthanasia (week 35). Biomarkers COLL2-1, COLL2-1NO2, Fib3-1, Fib3-2, as well as PGE2, were quantified in the serum. Histological assessments of knee cartilage and synovial membrane were performed at week 35.

R E S U L T S . At week 35, guinea pigs in the control group spontaneously developed important cartilage lesions with mild synovial inflammation. The histological scores of cartilage lesion and synovitis were well correlated with the increase of serum level of biomarkers. Histologically, all treated groups significantly reduced the cartilage degradation (p<0.01), and oleuropein group showed a significant decrease of the synovial modification (p<0.05) compared to the control group. Oleuropein decreased the PGE2 levels found in serum at week 35 (p<0.01). Serum COLL2-1 and Fib3-1 were decreased by rutin and rutin/curcumin mixture, Fib3-2 was only decreased by rutin/curcumin mixture, while COLL2-1 NO2 was significantly decreased by all treatments (p<0.05).



A: Total OA score in each group. **B:** Synovial score in each group. **C:** Representative pictures of medial compartment of right guinea pig knees of each group, at week 35. Control = control group, Oleur = Oleuropein group, Rut = Rutin group, Rut+Cur = Rutin + curcumin group. Safranin-O/fast green/hematoxylin staining, 5x magnification. Dunnet ANOVA: *= p<0.05, **=p<0.01, *** = p<0.001.

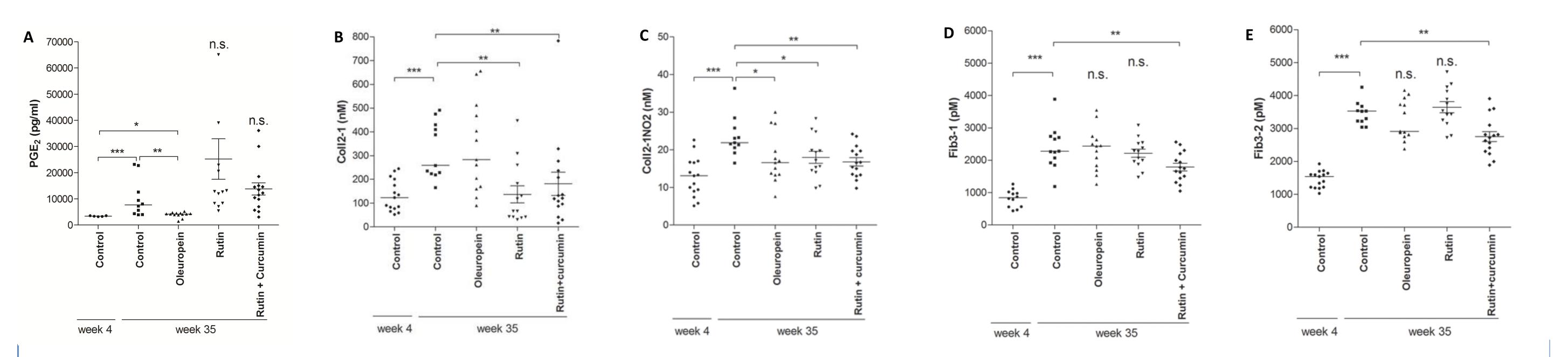


Fig. 2: Biomarkers results
Biomarkers levels found in guinea pig sera at week 4 or week 35. A: PGE2, B: Coll2-1, C: Coll2-1NO2, D: Fib3-1, E: Fib3-2.

Dunnet ANOVA: n.s. = non significative, * = p<0.05, ** = p<0.01 and *** = p<0.001.

C O N C L U S I O N

Oleuropein and rutin significantly slow down the progression of OA lesions in guinea pig developing spontaneously OA. Furthermore, oleuropein significantly decreased PGE2 and COLL2-1NO2 serum levels, and reduced synovitis, indicating the potent anti-inflammatory properties of these compounds.

