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Synthesis of a new Pd(II) complex with 1,5,5-trimethyl-2-(phenylselanyl)-6-oxa-bicyclo[2.2.2]octane as a ligand.

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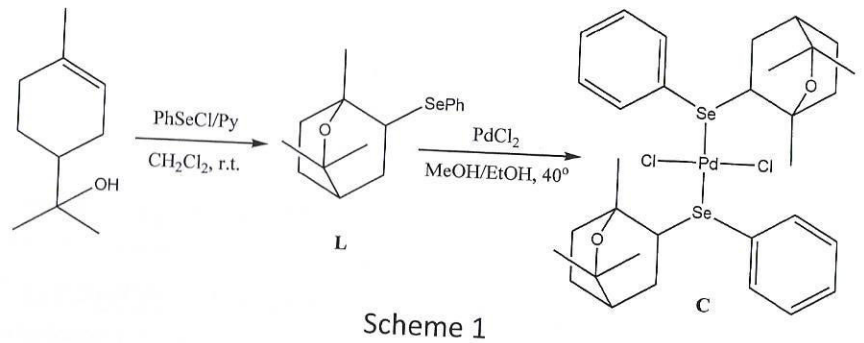
PO-014

Organoselenium compounds have gained much attention during the last decade, partly due to their coordination abilities and interesting biological properties . Transition metal complexes bearing organoselenium ligands were proven to possess catalytic, biological and biomedical properties. They exhibit antidiabetic[a], antioxidant, antimalarian, antitumor, antileucemic, and cytotoxic activity[b], thus presenting promising pharmaceutical agents. In our previous work we have screened 2-(phenylselanylmethyl)oxolane (Y) for its antioxidant and antiproliferative efect on colon cancer cell line HCT-116 and breast cancer cell line MDA-MB-231[c]. Coordinating Y to Pd(II) gave complex which displayed cytostatic and cytotoxic abilities. Direct continuation of this line of work involves synthesis of Pd(II) complex with 1,5,5-trimethyl-2-(phenylselanyl)-6-oxa-bicyclo[2.2.2]octane (L) as more sterically hindered ligand, in order to compare its biological activities with those of Pd(II)-Y complex.

Herein we report the synthesis of a new Pd(II) complex bearing organo-selenium moiety. Ligand L was obtained in high yield following a previously described procedure[d]. In order to obtain complex C (Scheme 1), the compound L was then treated with an excess of $PdCl_2$ at 40 °C, in EtOH/MeOH mixture as a solvent system.



Scheme 1

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Metabolic profiling of Greek propolis samples using HPTLC and NMR techniques. Evaluation of their antioxidant activity.

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PO-015

Propolis is a resinous material collected by honeybees (*Apis melifera*, L.) from various plant sources. Propolis is widely used in traditional medicine and is reported to have a broad spectrum of pharmacological activities such as antibacterial, antiviral, anti-inflammatory and anticancer properties [a]. Recently, Fonseca *et al.* showed that topical treatment with propolis extracts prevented UV irradiation-induced oxidative stress in the skin of hairless mice [b]. Epidemiological and clinical studies show that the exposure to UV light is responsible for various skin diseases, including premature aging of the skin and melanoma and non-melanoma skin cancer [c]. It is well-known that antioxidants constitute an important group of protective agents against skin damage induced by ultraviolet radiation.

Propolis is one of the richest sources of plant phenolics (flavonoids and phenolic acids), which are widely recognized as rather strong antioxidants. Since the composition of propolis varies with its origin (it depends primarily upon the vegetation of the area from where it was collected, including season, geographical origin, and the state of propolis), the intensity of antioxidant activity varies as well.

In the present study, we investigate the metabolic profile of 12 propolis samples from different regions of Greece using NMR and HPTLC techniques, as well as the evaluation of their antioxidant activity. Propolis' extracts were obtained using two-step sequential extraction with n-Heptane and methanol. The antioxidant activity of all samples was evaluated by DPPH radical scavenging activity and ABTS method. Total phenolic content was determined by Folin-Ciocalteau method, while the total flavonoid content was determined using an aluminum chloride colorimetric method. The methanolic extract showed considerable phenolic and flavonoid concentrations with significant antioxidant capacity.

Summarizing, the developed HPTLC and NMR protocols indicate that there is a great differentiation both in the chromatographic profile as well as to the quantification of the active components. Greek propolis fingerprinting with those techniques is being described for the first time, providing a useful tool, which enables their origin discrimination and in accordance with the biological results can act as an UVB protector-indicator for their use in cosmeceutical industry.

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