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While SO radical scavenging activity was tested using alkaline DMSO method, cytotoxic activity was tested by MTT assay against Hep-2 cancer cell line. As a result of bioactivity studies, Paramuricea clavata extract showed the strongest scavenging activity (IC50=296.81 μg/mL) and extracts of Parazoanthus axinellae, Halocynthia papillosa, Eunicella cavolini and Dictyonella incisa showed moderate activity comparing to that of ascorbic acid and quercetin. However, other extracts did not show any SO radical scavenging activity in tested concentrations. In the case of cytotoxic activity, only *Paramuricea clavata* extract showed dose dependent cytotoxic activity (IC50=228.71 μg/mL). Paramuricea clavata extract showed both SO radical scavenging and cytotoxic activity, phytochemical studies are going to perform on this species. In addition, pro oxidant effect of the extract will also be investigated to understand the mechanism of its activity.

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QUALITY CONTROL OF HERB MEDICINE AND TCM BY FINGERPRINTING USING EASTERN BLOTTING

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We prepared many kinds of monoclonal antibodies (MAbs) against natural products and developed a new staining method using MAb named as Eastern blotting. Natural products containing glycoside were developed by TLC and the TLC plate was covered by PVDF or PES membrane and blotted. The membrane was treated with NaIO4, and then with carrier protein like BSA resulting in glycoside-carrier protein conjugate (schiff base) on membrane. Peroxidase labeled secondary MAb and then substrate were added successively. Several ginsengs were analyzed to find out unknown ginsenosides in American ginseng, and elucidated these structures. In *Panax japonicus* we found two unknown ginsenosides. Therefore, we prepared an affinity column combined with antiginsenoside Rb1 MAb and purified the above crude extract. Two ginsenosides can be separated by the affinity column to isolate, individually. These ginsenosides were determined compared to the data of authentic sample of ginsenosides. Although *Karopanax* spp. was believed to be contained no ginsenoside, we succeeded to isolate ginsenoside Rb1 by Eastern blotting monitoring using anti-ginsenoside Rb1 MAb though very low concentration. As another application of eastern blotting method the double eastern blotting was developed. The crude extract of several *Panax* speceis were developed by TLC and blotted to PVDF membrane, and then stained by anti-ginsenoside Rb1 and Rg1 MAbs using two substrates. Pinkish and blush spots appeared, individually. From this staining we characterized two type of ginsenosides which possessed protopanaxadiol or protopanaxatriol as an aglycone in a molecule. Furthermore, this staining roughly can distinguish ginsenosides having pharmacological activity against the CNS.

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SYNTHESIS AND TOXICITY ASSESSMENT OF DRUGGABLE THIOSEMICARBAZONES

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Introduction: There is a renewed interest for thiosemicarbazones in terms of antimicrobial, antiviral, and antitumor activity. With notable exceptions (e.g. thiopental) thiocarbonyl-containing chemical entities are commonly considered as non-druggable. Screening of a library of thiosemicarbazones showed, however, exceptional potential. The purpose of this work was both to develop an environment-friendly method for the green synthesis of thiosemicarbazones and assess their toxicity. **Methods:** Synthesis was performed under DMF.I_2 complex catalysis. The characterization of the products was performed by determining the melting points and chromatographic behavior as well as ^{1}H-NMR and ^{13}C-NMR. Acute toxicity assay on Wistar rats was performed according to the recommendations of OECD test Nr. 423 to which were added biochemical dosages. In vitro larval toxicity test was performed according to Michael et al. **Results:** Synthesis led to 12 original thiosemicarbazones in fair to good yields. Among the prominent molecules, the best one was 9-fluorenone-4-phenylthiosemicarbazone which obtained a 99% yield. The toxicity assay on Wistar rats showed that the LD50 values of 4 druggable thiosemicarbazones were all higher than 2000 mg / Kg body weight. Larval toxicity test did not evidence any particular toxicity. **Conclusion:** Contrary to their bad reputation, synthesized thiosemicarbazones were validated as druggable leads.

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ANTIMICROBIAL ACTIVITY OF *CYMBOPOGON CITRATUS* ESSENTIAL OIL AND CITRAL THIOSEMICARBAZONE AGAINST MYCOBACTERIUM TUBERCULOSIS

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