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Editorial Open Access

Extraction and Preconcentration of N-Tolyl-Sulfonyl-Phosphoramid-Saeure-Dichlorid as an Anti-Cancer Drug from Plants: A Pharmacognosy Study

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Editorial

In the present short communication, a new and rapid Headspace Solvent Micro Extraction (HSME) method is utilized, for the extraction and preconcentration of the volatile and anti– cancer compounds such as N-Tolyl-Sulfonyl-Phosphoramid-Saeure-Dichlorid from plant samples into a microdrop [1-9]. The extraction occurred by suspending a microdrop of the solvent from the tip of a micro syringe to the headspace of the dried and powdered plants samples in a sealed vial for a preset extraction time [10-15]. Then, the microdrop was retracted back into the micro syringe and injected directly into a Gas Chromatography (GC) injection port (equipped with a Flame Ionization Detector (FID)). The identification of the volatile and anti-cancer compounds extracted by Headspace Solvent Micro Extraction (HSME) was confirmed according to their retention indices and mass spectra (EI, 150 eV) and quantitative analysis was performed by Gas Chromatography–Flame Ionization Detector (GC-FID). Parameters such as the sample temperature, micro syringe needle temperature, sample volume, extraction time and microdrop volume were studied and optimized in ten levels and finally, the method performance was evaluated.

On the other hand, N-Tolyl-Sulfonyl-Phosphoramid-Saeure-Dichlorid mustard and acrolein and its cyclic analogous such as Cyclophosphamide are shown anti–cancer activity [16-24]. N-Tolyl-Sulfonyl-Phosphoramid-Saeure-Dichlorid mustard and acrolein containing Amino Acid moiety have advantages in comparison to Cyclophosphamide because of releasing the non–toxic compounds in body after hydrolysis of the P–N bond. This short communication will report a synthetic route for N-Tolyl-Sulfonyl-Phosphoramid-Saeure-Dichlorid mustard and acrolein containing Amino Acid. The Intermediate Phosphoramidate (I) obtained from reaction of appropriate Alcohol or Phenol with Phosphorus Oxychloride in the presence of Triethylamine in Dichloromethane (DCM) or Ether. The obtained Chlorophosphate Intermediate (I) was treated with Diethylamine or Bis-b-Chloroethyl Amin Hydrochloride in the presence of Triethylamine. Therefore, the obtained intermediate Phosphoramidate (II) was reacted with Phenyl Alanine Ethyl Ester Hydrochloride in the presence of Triethylamine to give the target molecules. The structure of products was designed using Attenuated Total Reflectance Fourier Transform Infrared Spectroscopy (ATR-FTIR), FT–Raman, Mass, ^{1}HNMR, ^{13}CNMR and ^{31}PNMR spectroscopies and with data literature.

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