DAY 1

Keynote Forum

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Liming Ye et al., Am J Pharmacol Pharmacother 2018, Volume 5
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SIMULTANEOUS DETERMINATION OF FIVE ISOSTEROIDAL ALKALOIDS IN SIBERIAN FRITILLARY BULB IN RAT PLASMA AND ITS APPLICATION IN PHARMACOKINETIC STUDY BY HPLC-MS/MS

Liming Ye, Min Liang, Jianzhong Wang and Yanping Liu

In this study, a sensitive high-performance liquid chromatography with tandem mass spectrometry (HPLC-MS/MS) method established for simultaneously determining five main isosteroidal alkaloids (imperialine-3-β-D glucoside (imperialine-G), imperialine, peimine, hupehenine and yibeinoside A) in Siberian Fritillary Bulb, was applied to pharmacokinetic studies in rat plasma. The plasma samples pretreated using liquid-liquid extraction with ethyl acetate were quantitated by multiple reaction monitoring (MRM) via positive electrospray ionization (ESI) mode. Chromatographic separation was performed on an Intersil ODS-2 column (5 µm, 4.6 ×150 mm) with a single fifteen minutes run using gradient elution. The mobile phrase consisted of (A) 10 mM ammonium acetate (containing 0.1% of formic acid) and (B) methanol. Method validation results showed that the developed method had good accuracy and precision over the corresponding linearity range for all the analytes. Besides, bench-top, autosampler, freeze-thaw circulation and long-term storage stabilities met the acceptable limit. This study examined a specific and robust method which was successfully applied to analyze rat plasma samples for pharmacokinetic study of five isosteroidal alkalosids.

Biography

Liming Ye has obtained his PhD Degree in 2008 from West China School of Pharmacy, Sichuan University, Chengdu, Sichuan Province, RP China. He is Professor of Pharmaceutical Analysis in West China School of Pharmacy, Sichuan University. His research interest is in the area of basic components analysis, the dynamic change rule study and standardization research of Traditional Chinese Medicine (TCM), as well as the establishment and study of predictive quantitative retention-activity relationship models of series medicine by biopartitioning micellar chromatography (BMC).

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Isabel Desgagne-Penix, Am J Pharmacol Pharmacother 2018, Volume 5
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METABOLIC ENGINEERING OF MICROALGAE CELLS FOR THE PRODUCTION OF PHARMACEUTICAL AMARYLLIDACEAE ALKALOIDS

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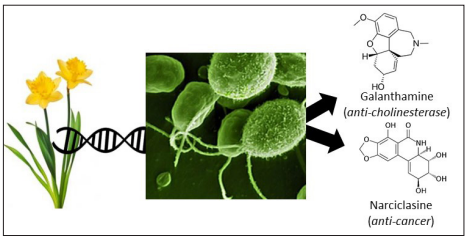
Amarylllidaceae plant alkaloids (AAs) possess powerful pharmaceutical and biotechnological properties. AA metabolism and its fascinating molecules, including anti-acetylcholinesterase galanthamine, anti-microbial lycorine and anti-cancer narciclasine, have attracted the attention of both the industry and researchers involved in plant science, chemical bioengineering and medicine. Currently, access and availability of high-value AAs [commercialized (e.g. galanthamine) or not (e.g. narciclasine)] is limited by low concentration in plants, seasonal production and time-consuming low-yield extraction methods. Nevertheless, commercial AA galanthamine is still extracted from plant sources. Efforts to improve the production of AA have largely been impaired by the limited knowledge on AA metabolism. The purpose of this study is to use recent development and integration of next-generation sequencing technologies and metabolomics analyses to unravel metabolic pathways allowing the use of metabolic engineering approaches to increase production of valuable AAs (Figure 1). Novel genes encoding AA biosynthetic enzymes were identified from our transcriptome databases using bioinformatics tools. The genes were characterized and their activities were studied through classical biochemistry experiment such as cloning into expression vectors, heterologous expression, recombinant protein purification and enzyme assays. In addition, AA precursor pathway was introduced into microalgae cells to 1) validate the function of the biosynthetic genes and 2) to produce AA molecules. Next, the final steps of the AA biosynthetic pathway will be added to reach galanthamine or other AA synthesis in microalgae. Metabolic engineering provides opportunity to overcome issues related to restricted availability, diversification and productivity of plant alkaloids. Engineered cells can act as biofactories by offering their metabolic machinery for the purpose of optimizing the conditions and increasing the productivity of a specific alkaloid.



Biography

Isabel Desgagne-Penix has completed her PhD in Cell and Molecular Biology in 2008 from the University of Texas at San Antonio and Postdoctoral studies in Plant Biochemistry at the University of Calgary. She has her expertise in Medicinal Plant Metabolism specifically with molecule of the alkaloid category. She is the Director of the plant specialized metabolism research laboratory. She has published numerous papers in reputed journals and has been serving as an Editorial Board Member of the journal of Plant Studies.

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RESEARCH ON ANTIDOTE OF CHEMICAL WEAPONS KNOWN AS SODASULPHANECOBLAMIN

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Sodasulphanecobalamin (Na_4S_5 $CoC_{69}N_{15}H_{89}O_{26}$) is an antidote for chemical weapons, which detoxify and decentralized the toxic substances in any chemical based threat mainly, classical chemical agent threat categories include vesicant or blister agents (e.g., sulfur mustard), blood agents (e.g., cyanide), respiratory agents (e.g., phosgene), and nerve agents (e.g., GA or Tabun, GB or Sarin, GD or Soman, and VX) as well as lung damaging agents (Chlorine, diphosgene). It dissociate the toxic components in each chemical weapons, either nerves agent, blister agent or mustard gas to a nontoxic substance when administered and doesn't have any adverse effects unlike Atropine (which has little effect on nicotinic effect, such as muscle twitching, flaccidity) and other antidotes been tested for neutralizing or countermeasures for a particular chemical based threat. It displaces the cyanides to a free toxic compound, thiocyanocobalamin .It removes the burns when the sulfur mustard is been contacted through skin, and eye. The antidote (Sodasulphanecobalamin) which is sulfur drug group (H-S) bends the mustard makes the anditodal removes mustard from the body, of which can be used as treatment for organic arsenical. It also added the amide group of protein when used. However, recent studies show that this antidote can serve as a replacement for the antidote of Orange agent (2, 3, 4, 7-tetra chlorobenzodioxin) which displaced millions of Vietnam citizens during the World War II and displaces chlorobenzo to sodium benzoate and saline. Though mercury (I) oxalate is been used for this antidote for the orange agent, but we all know that mercury is highly toxic and poisonous to the human. Nerve agents developed in the 1930s and 1940s were stockpiled during the Cold War. More recently, nerve agents have been used in the Iran–Iraq War in the 1980s, the Japanese terrorist attacks by the Aum Shinrikyo cult in 1995 and attacks in Syria in 2017. When Sodasulphanecobalamin is been used for nerves agent antidotal, it dissociates organophosphate to phosphoric acid which helps in metabolism of the body. (Na_4S_5 $CoC_{69}N_{15}H_{89}O_{26}$) is produced by dissolution of hydroxocobalamin with the decomposition of Sodium nitrite and Sodium thiosulfate, then treated with the acidified Sodium bicarbonate, which led to a faster return to baseline mean arterial pressure compared with sodium nitrite with sodium thiosulfate; however, there was no difference between the antidote combinations in mortality, serum acidosis, or serum lactate (TERTSodium1,2-diithiosulphite-3,4diiintroso Co-α(α-5,6diimethlybenzylmizazonly) co-β-hydroxocobalamin) NO + HOcbl +2NaoH + NO_2 +3Na_2SO_4 + Na_2S_5 2Na_2SO_3 + 2$NaNO_2$ + 4NaOH +HOSCb1 +SO_2 (g) Na_4 $(S_2O_3)_2$ $(NO_2)_2$ $C_{62}H_{87}SCON_{13}O_{16}P$. This Research helps to develop the concepts, therapeutic regimens and procedures for the management of chemical warfare agent casualties; developing diagnostic and prognostic indicators for chemical warfare agent casualties; and developing life-support equipment for definitive care of chemical warfare agent casualties. The most efficient and reliable way to treat chemical weapons is by using Sodasulphanecobalamin. It is non-carcinogenic, non-mutagenic and non-teratogenic compound which is composition doesn't has any toxicity and health effect when administered. It can also be used as any chemical based threat.

Biography

Salako N Olatunji has his expertise in quantum physics, also on determination of numerical value of dimension on physical quantities, root mean square velocity and molecule velocity of all chemical elements which is never done before, stoichiometry and periodic properties table that shows the intrinsive and extrinsive properties of all chemical elements. Determination of Molecular Mass and Formula for Air. Computational Mathematics and Application of Small organic Molecules. Antidote of chemical mass weapon (2, 3, 7, 8 - Tetrachlorobenzo-p-dioxin). Critical cGMP and ICH regulations for Pharmaceutical Laboratory. Pollution or environmental remediation studies, anthropogenic effect on petroleum. Synthetic of compound for biological evaluation. Synthetic of helium compound, which is another source of sun. Research on Oil Dispersant. Production of antidote of Cyanide Poisoning.

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