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CONTENT

SOME QUESTIONS ON THE TOPOLOGY OF THE SPACE OF ANTISYMMETRIC AND SYMMETRIC LINEAR DYNAMIC SYSTEMS

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ABSTRACT

We consider the linear dynamic system of m-input, p-output, n-state (or briefly the linear system) described by the following state-space equations

$$(1) \quad \begin{cases} \dfrac{dx(t)}{dt} = Ax(t) + Bu(t) \ (*) \\ \qquad y(t) = Cx(t) \end{cases}$$

where the triple of matrices $(A, B, C) \in K^{n \times n} \times K^{n \times m} \times K^{p \times n}$; $x(t) \in K^{n}$ and $u(t) \in K^{m}$ and $y(t) \in K^{p}$ are the values of the state and the control and the output respectively at the time $t \in \mathbf{R}$; $K = \mathbf{R}$ or $\mathbf{C}$ is the field of real numbers or complex numbers.

The solution of the differential equation (*) with $x(0) = x_0$

$$x(t) = e^{At} \left[\int_0^t e^{As} Bu(s)ds + x_0 \right]$$

indicate that the control u(s) trasform the intial state x_0 at the time zero come to the state x(t) at the time t along the trajectory x(t).

Such a system is called *globally controllable* if, given any pair of points x_0, x_1 in K^{n}, there exists an "admissible" control u(s) that steers x_0 to x_1 along a trajectory of the system (1). In this case the system (1) is called *reachable* and the pair of matrices (A, B) is called also reachable. The system (1) is called observable if and only if the pair (A^{T}, C^{T}) is reachable. Here A^{T} is the transpose of A. A system (1) is said to be: *Symmetric* if and only if A is a symmetric matrix, that is $A = A^{*}$; *Antisymmetrix* if and only if $A = - A^{*}$. Here A^{*} denotes the conjugate of A.

In 1969 R. E. Kalman prove that the observability and reachability conditions are equivalent to the algebraic conditions: System (1) is reachable if and only if

$$\text{rank } [B, A^{2}B, A^{3}B, \ldots, A^{n-1}B] = n;$$

and system (1) is observable if and only if

$$\text{rank } [C^{T}, A^{T}C^{T}, (A^{T})^{2}C^{T}, (A^{T})^{3}C^{T}, \ldots, (A^{T})^{n-1}C^{T}] = n.$$

Denote by:

a/ $S^{R}_{n,m,p}$ the space of reachable symmetric linear systems;

b/ $AS^{R}_{n,m,p}$ the space of reachable antisymmetric linear systems;

c/ $S^{RO}_{n,m,p}$ the space of observable and reachable symmetric linear systems;

d/ $AS_{n,m,p}^{RO}$ the space of observable and reachable antisymmetric linear systems.

There are some questions on the topology of these spaces:

1/ Can we parameter continuously all linear system consdered about by normal forms ?

2/ If not exist normal forms such that they are contunuous on global, what are local continuous normal forms and how we can find they ?

3/ What is minimum number of critical points of an objective funtion on these space ?

4/ What is topology of the space $S_{n,m,p}^{R}$, $AS_{n,m,p}^{R}$, $S_{n,m,p}^{RO}$, $AS_{n,m,p}^{RO}$?

The results of this paper are closely related to 4 questions about.

I/ We construct the local continuous normal form on $S_{n,m,p}^{R}$, $AS_{n,m,p}^{R}$, $S_{n,m,p}^{RO}$ and $AS_{n,m,p}^{RO}$.

II/ We present the analytic cell decompositions of $S_{n,m,p}^{R}$ and $AS_{n,m,p}^{R}$.

III/ We obtain completely the homology groups of $S_{n,m,p}^{R}$ and $AS_{n,m,p}^{R}$ and obtain some homotopy groups of $S_{n,m,p}^{R}$ and $AS_{n,m,p}^{R}$.

IV/ By using the results of III/ we prove that we can't parameter continuously on global of the space $S_{n,m,p}^{R}$ and $AS_{n,m,p}^{R}$ if the number of input $m > 1$.

ON RELATIONSHIP BETWEEN C^0-SUFFICIENCY OF JETS OF POTENTIAL FUNCTIONS AND C^0-SUFFICIENCY k-JETS OF r-RETICULAR FUNCTION - GERMS

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ABSTRACT

Let $\varepsilon_{r+1}(n,1)$ be the set of all (r+1)-time continuously differentiable mappings $f : \circ^n \to \circ$, with $f(0) = 0$. We call $f, g \in \varepsilon_{r+1}(n,1)$ equivalent of order r at 0, if at 0 their formal Taylor expansions up to and including the terms of degree $\leq r$ are indentical. An r-jet, denoted $J^r(f)$, is the equivalence class of f with f being called the realization of $J^r(f)$. The set of all r-jets is denoted by $J^r(n,1)$. Recall that the problem of sufficiency is to determine how to omit higher orderd terms in Taylor expansion. An r-jet $z \in J^r(n,1)$ is call C^0-sufficient 1-reticular if for any two realizations f,g (which are C^{r+1} functions) of z , there exists a local homeomorphism reticular $h : \circ^n \to \circ^n, h(0) = 0, h(\{x_1 = 0\}) = \{x_1 = 0\}$, such that $f(h(x)) = g(x)$ for al $x = (x_1, x_2, ..., x_n)$ in a neighborhood of $0 \in \circ^n$ z is v-sufficient 1-reticular or v-insensitive reticular, if the germs of the varieties $f^{-1}(0)$ and $g^{-1}(0)$ are homeomorphism reticular.

In this paper, we shall give some criterions for C^0-sufficiency k-jets of r-reticular-germs, and relationships between C^0-sufficiency of jets potential functons and C^0-sufficiency of k-jets of r-reticular-germs.

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ON THE TECHNIQUE FOR CANCULATING LIE DERIVATION OF POLYNOMIAL ALGEBRAS

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ABSTRACT

We already know that the Lie derivative techniques and the covariant derivatives are widely used in the theory of space motion Rimanian, affine space, image space radiation. The study of the calculation of the Lie derivative, covariant derivative allows us to study the manifold structure on the space above.

In his work, A.Ya.Sultanov expanded operations of the Lie derivative and covariant derivative to those identified on the module of the derivative of linear algebra and then he has calculated the derivatives on the module of the polynomial algebra. In this paper, we introduce a new technique to calculate the Lie derivative on the module of the polynomial algebra through a permit P-element of the algebra of polynomials and obtain the similar results A.Ya.Sultanov.

MISSION OF SCHOOLS IN ENVIRONMENTAL EDUCATION

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ABSTRACT

President Ho Chi Minh once said of the first and most important task for humans. Lee Kuan Yew (Former President of Singafore) says: Victory in education, the economy won. Every man born and raised are educated from an early age, but with a new self-education, the best results. The school and the teacher will do and how people are living in peace and safety of the planet is a matter well worth attention. Our opinion in the article include the following related content:

1. Frequently asked opinion leaders plan and measures to take care of not only general education but also in particular - especially environmental education.
2. Connected together in a comprehensive education for students; create conditions for people serious about learning self-education is the key (Unknown professor of religious-intellectual wisdom teacher is not so sophisticated and respectable level one).

3. Close contact with people's organizations regardless of country, region to create an understanding and common ground necessary to protect the natural environment, living friendly with each other and with nature.
4. Regularly or periodically organizes cultural exchange activities, art to enhance mutual understanding between peoples, other government agencies or NGOs to build consensus on environmental protection, natural However in our lives.

5. Really interested, there are ways to share difficulties and emotional learning, creative work of students, students with special circumstances but rose to strive for the victory itself development community.

SUSTAINABLE DEVELOPMENT OF VIETNAM'S AGRICULTURE IN THE INTERNATIONAL ECONOMIC INTEGRATION

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Abstract: International economic integration is a driving force to motivate the development of production but it also poses many challenges for Vietnam's agriculture. The paper shows that Vietnam's agriculture today are faced with: (1) poor sustainable growth and low competitiveness, (2) increasing environmental pollution in production, (3) excessively exploited natural resources. To contribute to the sustainable development of Vietnam's agriculture, the author offers the following solutions: (i) Enhancing the competitiveness of agricultural products, especially the staple agricultural products, along with providing sufficient information to farmers, (ii) Creating a close relationship between farmers, businesses, scientists, and the government; (iii) developing models of agricultural production, using the farm economic model as a leverage, (iv) implementing the supportive policies and management effectively.

Keywords: Vietnam, agriculture, Vietnam's agriculture, sustainable development, integration

PREDICTING CURRENCY CRISIS IN DEVELOPING COUNTRIES: AN APPLICATION OF EARLY WARNING SYSTEM IN SOUTH EAST ASIAN COUNTRIES

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ABSTRACT

The 20th and early 21th centuries see lots of financial crises during the course of world economy development. Many economic and social consequences are found after the sweep of these types of economic storms. The fact shows that most of financial crises go along with currency crisis in which currency crises incur the other financial crises or else currency crises occur as a result of the other financial crises. Under the regular occurrence and severity of currency crises, the analysis and prediction of this kind of crisis have attracted a great deal of concerns from relevant institutions and governments for the sake of prevention, discovery and treatment. In this context, to that end, Early Warning System (EWS) is constructed to examine the currency crises. A EWS is a system which apply statistical methods to predict the likelihood that an economy would face financial crisis over a given time horizon. The framework of those models is primarily composed of selected economic and financial indicators that are likely to provide an indication of a vulnerable position at the macro or aggregate level (Nicholas Cheang, 2006). To construct EWS model, various approaches are used, of which qualitative response method have been proved to be one of the most effective ways of examining financial crisis (Lestano, 2001; Berg and Pattilo, 1999). This method uses logit or probit multivariate model which allows testing of statistical significance of explanatory variables and calculating the probability of crisis. The construction of an index that captures both crisis episodes and tranquil episodes is central in this model and hence act as a trustable early warning of future crises. Three most noticeable studies including Eichengreen, Rose and Wyplosz (1996), Kaminsky, Lizondo and Reinhart (1998) and Frankel and Rose (1996) have built up different approaches for this index of early warning signal. Based on nominal exchange rate, international reserve and interest rate, they have constructed exchange market pressure (EMP) to define a currency crisis.

In this study, Early Warning System is applied to a sample of 6 South-East Asian countries including Malaysia, Indonesia, Philippines, Singapore, Thailand and Vietnam. These countries are among the most adversely affected by the Asian crisis and the results should shed light on whether some observable macroeconomic indicators are useful in predicting a financial crisis. Also, of many types of financial crisis, we focus mainly on currency crisis which is especially destructive to small, open and unstable economies. Currency crisis often occurs under speculative attacks in the foreign exchange market and make currency loses its value rapidly. In 1997 Asian financial crisis, except Singapore and Vietnam, the crisis-hit South-East Asia countries of Thailand,

Malaysia, Indonesia and the Philippines have experienced similar situation. After years of record GDP growth rates and impressive capital inflows, these countries suddenly experienced a sharp downturn in the external value of their currencies and a sudden reversal of private capital flows. Serious economic consequences have been found since then.

Using multivariate logit model, this study has examined the probability of currency crisis under the influences of four groups of factors in six ASEAN countries over the period of 1990-2010. Three definitions of currency crisis have been employed through three approaches in calculating exchange rate market index, i.e KLR, ERW and FR. The empirical analysis found compelling evidence that by in-sample prediction, the model with KLR, ERW and FR performs remarkably well in predicting Asian currency crises. Of which, Frankel and Rose (FR) approach outperforms the other model. The results also suggest that the most important indicators affecting the occurrence of currency crisis are International Reserve, Short-term Debt to Reserve and Real GDP Growth Rate.

MOLECULAR CHARACTERIZATION OF POLYHEDRIN ISOLATED FROM MONODON BACULOVIRUS INFECTED SHRIMP IN VIETNAM AND ITS APPLICATION FOR MBV DIAGNOSTIC KIT DEVELOPMENT

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ABSTRACT

Monodon baculovirus (MBV) is a member of the nucleopolyhedrosis virus group (NPV). They form occlusion bodies (OBs) containing infectious virions in large proteinaceous structures termed polyhedra in the epithelial cells of hepatopancreas of the infected peinaeid shrimp (*Penaeus monodon*). OBs serve to protect the occluded virions from the outside environment for extended periods until they are ingested by insect larvae. The most abundant component of polyhedra is a 29-kDa protein called polyhedrin, which constitutes the matrix of the OB and accounts for up to 25% of the total protein in virus-infected cells. It has been known that the specificity and sensitivity of antibodies to polyhedrin (anti-polyhedrin) is critical issue for MBV diagnosis. Until now, MBV complete genome has not been decoded and none of the MBV genes has been studied for expression either. In order to produce monoclonal antibodies against polyhedrin, we tried to clon and express the gene coding for this protein (the *pohl* gene).The *polh* gene was amplified by PCR using specific primers, which were designed based on sequence on GeneBank (EU251062) and overhang with restriction enzymes sites of *Nco*I and *Hin*dIII on 5'-end of the forward and reverse primer, respectively. The *pohl* gene expression was carried out by ligation of the gene into pET32a(+) expression vector and *E. coli* BL21 DE3 transformation. The recombinant protein containing His-tag at C-terminus was produced and purified by affinity chromatography using Probond™ Nickel-Chelating Resin column (Invitrogen) under hybrid condition as described by the manufacture. The native polyhedrin of MBV was extracted from the infected hepatopancreas of the *P. monodon* post larvae and purified on the Urografin gradient. Both natural and recombinant polyhedrin were used to immunize BALB/c mice. The antibody titer of each BALB/c mouse was evaluated by ELISA using native polyhedrin antigen for plate coating. Based on ELISA results, the mice with highest antibody titers were selected for hybridoma techniques to produce monoclonal antibody against polyhedrin and application for MBV diagnostic kit development.

THE TECHNICAL SOLUTIONS FOR ENERGY SAVING AND ENVIRONMENTALLY FRIENDLY

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ABSTRCT

1. Solutions to save energy and reduce harmful emissions for motorized two-wheeled.

 Environmental issues are a concern not only one country, because it relates to the survival of mankind. But now the world's environment again on the threshold of alert, so, should I do to reduce toxic fumes are released directly into our atmosphere, which is the common task of global citizens. Especially for countries using the vehicle mainly motorbikes as in Vietnam, the issue of improving the engine to the maximum limit to the amount of toxic gas emissions is urgent. Understanding that, we have researched and found the best solution for pipe of the motorcycle. This solution has won the first prize in the competition and technical innovation in Quang Binh province in 2011.

Solutions based on the principles apply to use spark plugs preheat the gasoline and Diesel vehicles are the ambient temperature year-round low to cause engine knock.

When the internal combustion engine operation, the discharge cycle engine will push out the gas has a high temperature and fire through the exhaust pipe (pipe) to escape.

The principle of this solution is the use of stock exhaust heat to heat the gas before entering the carburetor to create blended with gasoline fuel mixture for high temperature explosive compression engine temperature of this mixture in the combustion cylinder more completely, the amount of harmful emissions of CO, HO fewer emissions and gasoline use will decrease compared to the non-performance solution. At the suction cycle of the engine combustion chamber by the pressure of the lower cylinder to make smoking a gasoline engine and a gas through the carburetor fuel mixture should be born. Do take the hot air system of this solution should be composed of closed-door air influx (V) passing along the old exhaust pipe u42 and U21 mm mm where this air is heated and when to elected 75-volume air filter 850c.

This hot gas is mixed with gasoline, so fuel mixture after reaching carburetor from 700C to 80 0C make this fuel mixture more combustible, are more mixed. The complete combustion occurs when compressing it, so the ability to generate the motor when the solution is higher than the same amount of gasoline blend.

Theoretical basis of the solution as follows:

According to the internal combustion engine, the power coefficient expressed by the formula:

* Aspect Ratio to adjust capacity: CF

$$C_F = \frac{P_{s,d}}{P_m - P_{o,m}} \left(\frac{T_m}{T_s} \right)^{1/2}$$

Where: Ps, d: absolute pressure of dry air standards

Pm: absolute pressure of the measured environmental

Po, m: partial pressure of water vapor in the measured environment

Tm: temperature of the measurement environment (in 0K)

Ts: temperature of environment criteria

So look at the formula shows the increase in temperature Tm limits of engine power was increased linearly with. With this solution, the combustion occurs in the cylinder more completely thus reducing the amount of environmental pollutants than when not using the solution. Especially this better combustion engines for motorcycles is being circulated on the market do not use carburetors electronic fuel injection. When you begin to maximize the vehicle's operation.

2. Water bowls green wall

2.1. Components:

+ "Green wall planting pots" are two types:

- Type of watering by hand, self-flooding when it rains

- Type of automated watering plants with watering system penetrates the water tank, automatic water level from each pot on the pot bottom.

2. Usage: "Pot plant green wall" refers to planting in the following cases:

+ Plant trees stand on a flat surface to make billboard-friendly environment in which absolutely no pots.

+ Do fences families, workplaces, parks, median strips on the road ... etc.

+ Planting on the walls to sun shone on the walls make the house cooler and reduce heat absorption of the concrete wall.

+ Growing vegetables is clean for the family meal. Especially grow vegetable crops such as water and water-resistant crops.

+ Planting was in the balcony, the space of the apartment, the family to eat vegetables, sunshades, rain, wind changes for the curtain wall screen outdoors.

+ Use "green wall planting pots" to make the sugar decorations for homes, villas ... by trees.

+ Use "green wall planting pots" for the experimental plants, experimental work at the office without having to rent other crops in place.

+ Plant trees in the "green wall planting pots" to save a lot of crop area is good conditions to develop green, vegetables, trees decorated ...

3. Guide:

a. Mounting the pots on the wall:

Trade E + Attach a tube 21 with galvanized iron on high. 21 he feared this was just the place of watering the plants, just as the first place sling hook sequence "green wall plant pots."

+ Determine the height and number of pots need to cut wires hanging right size.

+ Courses end of the wire with a hook made by the manufacturer included in the pot.

Place the pots in and use the seven iron (manufacturer supplied) and the simple clasp is the pot cross-linking and link together to form a vertical wall to withstand storms, completely without any

negative entitled at all to the wall.

b. How to use pots to fence: Use "green wall plant pot" fencing.

+ Building and head footing as normal (no brick).

+ Attach the cylinder head with the other head is a galvanized iron pipes have a place to hook wires and irrigation pipes.

+ Installation of two layers, facing back to back to the tree toward the two sides of the fence (for the second view from the fence, a barrier layer to look from one side)

+ How to engage cross-linking and vertical integration as item a.

c. How to use pot as billboards:

+ Korean steel frame size billboard design, the frame must be placed on galvanized pipe to carry water for irrigation and where wire hook.

+ How to install horizontal alignment and vertical integration as item a.

+ Background a billboard in the background trees. Advertising content in many different colors of plants will have billboards as you like.

d. How to use pot to shield railing houses, condominiums growing vegetables, herbs daily meals:

+ Housing balcony, terrace use "green wall plant pots" to grow clean vegetables including vegetables such as spinach grown in water, vegetables ...

+ You can use iron pots mounted on the swivel bracket for use as a shield, but also change the outside to inside and outside surface in order to care for plant and harvest crops as well as two sides of the green wall. This approach works well for urban housing, the city ...

+ How to transplant pots as item a.

e. How to use pots as decorative lines: "Pot plants green wall" can cover your house with trees, but can also be used to make decorative lines enhance the aesthetics of the home . Especially the bottom of the window to be one of colorful flower pots, but the styles are not losing pots of beautiful homes.

g. Pots using a pilot plant experiments: In experiment centers, laboratories of this basin is the nursery used to test and monitor the growth of plants, flowers ..., but officials technicians from having to take public transportation, take the leased area of cultivation ... etc.

4. Engineering plant "pot plants green wall" can be used for watering by hand or automatic watering systems, soil moisture should always be asked to reach out, even under water to water plants and pot system against floods when it rains so the land to plant trees to light textured, porous and nutritional well-developed roots.

The main components of soil include: 30% humus knock, and 20% coir mill, 20% ash, 20% porous soil, 5% and 5% NPK manure river won.

Fill the pots and mild compression plant / seed.

Note: Because of flooding holes are drilled to the bottom 5cm or so when all the rain water out perineal always have a reserve of water seepage upward to the top of the land that farmers are not irrigating, until the This stored water. These are advantages which no crops on land or on the other pot. /.

For a clean and green environment and reduce the heat absorption of the concrete, walls, etc. .... make global warming will cause climate change occurred many consequences: drought, storms floods, tsunamis, earthquakes, ... to mankind. Every person, every organization should use the

"green wall plant pot" in order to contribute to environmental protection, protection earth that humans are destructive as today.

Currently, in the urban area for the campus trees are being gradually narrowed. While climate is increasingly heating up. So we are thinking solutions that help households self-regulatory landscape, bringing nature closer to your home more.

TWO NEW TECHNICAL INVENTIONS REPLACE THE OLD TECHNOLOGIES

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ABSTRACT

Science and technology are increasingly being applied widely in all areas of life contributing to the socio-economic development of the country. Understanding that, we will strive to explore solutions to overcome these difficulties, seeking new technologies to replace costly technology or outdated funding. Here we introduce a number of technologies have been applied in practice in recent years:

1. Siam aerated plastic reel

These technologies were developed based on local realities of where we live. Quang Binh is a land with many rivers and lakes. So fishermen have her children take advantage of this to economic development such as fish, shrimp, crab ... Over the years, her children and fishermen reel aeration used in the model of Thailand called "Spinning Gears fur urchins. " But it has wheels made of heavy iron and easy to rust, the transportation, installation, use and storage constraints, composed of iron and solder fixed size of the wheels should not be adjusted as needed or take advantage of it when damaged. So we invented the wheel aeration Siam plastic to meet the needs of the people.

Wheel 4m long plastic aeration Siam (same size as the wheel and the lever of iron) weighing 43kg to reach 63.2% by weight of iron wheels should only use 2.2 kw motor rotates the wheel is enough to speed requirements from 140 to 148 rounds / minute. (Ratio of the reduced speed is 1 / 10). Thanks to construct the first lever opposite to the rotation curve of the wheel so the wheels do not turn in a depth of water lever is 5cm. When the wheels start turning this wheel because the curvature gradually flooded and reached a depth of 10cm is stable. This improvement makes the startup current of the motor when the current load increases.

In addition to recording to mixing air into the water, the treadmill to create a flow in the tank with 3 other wheels form a circle of water in order to collect the dirt, feces of shrimp ... between the lake to escape mind tube trap.

The amount of air mixed into the water to flood the rotating lever when lever is 10cm x 76 / 4 m of wheel rotation speed from 140 to 148 rounds / minute, the amount of oxygen is 60 to 10 PPM (required by the pond from 5 to 8 PPM).

 Siam plastic wheel aeration has the following advantages:

- The entire outer surface of the wheel is made of plastic and stainless silver stainless should run completely overcome the rust caused by salt water.

- Life of Siam Plastic wheels not less than 2 years. Compared with iron wheels only 12 to 14 months is damaged, thereby reducing investment costs, lower the cost of shrimp farming.
- Do light reel by 63.2% compared with iron wheels to transport, installation and maintenance easier - especially with weight on wheels Siam Plastic just use 2.2 kw motor is to achieve the requirements of users - 0.8 kw per hour savings. Each tank 4 wheels save 3.2 kw / hr to contribute effectively to reducing the production costs of investors and make energy-saving programs of state power.
- Due to construction of the lever as described above should be able to drag the load current increases as the motor does not start big iron wheels use straight pipes. This also contributes to energy saving in motor launches.
Thanks to Siam plastic wheel is made of plastic should not cause environmental pollution, water shrimp and environmental protection community after flushing out. This is the Vietnamese superiority of Environmental Protection wastewater.

2. DC motor technology
These engines are widely used in industrial, civil and mechanical engineering as used for ships, boats, electric scooters, electric cars, DC generators use wind energy to power ...
The main characteristic of DC motors have:
+ Application of general principles that turn DC power into mechanical energy. But the point is limited, that is:
- Energy consumption: the DC motor is the stator excitation by direct current, rotor winding, a power to be consumed by the magnetic field changes.
- Structure of the complex: the DC motor has the stator excited by permanent magnets, but rotor winding and commutator particular, the commutation is made quite complex, bulky parts or is damaged Corrupt.
The basic specifications:
- Input voltage 48V DC
- No load current: 1A
- Maximum current: 70A
- Maximum capacity: 3.36 Kw
- Maximum spin speed: 3600 r / min
Describe the structure of technical solutions:
- The engine consists of four main parts:
+ Stator includes permanent magnet 16 is divided into two parties on each side 8 magnet is attached to a steel fitting, then all the fixtures are attached to the lid.
+ Roto: is made from 0.75 mm thick copper plate 127 then shaped and composite insulators around the optical axis and the axis through the plate glass insulating the outer end of the copper plate is coated with tin to solder another in connection schemes. Between the panels is the silicon steel cores, silicon steel sheets of 06 different sized composite of paper and surrounded by insulation.
+ The brush: The brush is made of 08 divided into 04 pairs competition took place 02 electrodes 48V power.

+ Gust machine: It is cast from aluminum Silumin have the following tasks: fixed attachment of the permanent magnet, brushless fixed sets, and creating vents; heat.

Principle of operation:

Based on the connection diagram shows the entire circuit Roto is a serial ring, respectively, closed 1-2-3 - ... -125-126-127-1. 08 brush sets are divided into 04 pairs of poles and create impact on Roto 04 pairs of torque at the same time, the motor torque to achieve greater

DC motor technology with the U ¬ u ¬ peppers floating point for the following:

- Due to the structure of Roto brush used to scan directly to the engine compact.

- Due to changes in the common winding thin copper foil, put them together and go with great speed to the level of heat faster than other common types of engines, plus the wind machine is made from cast aluminum vents, thermal main advantage of special structure of the motor rotor to withstand higher temperatures than the conventional one-dimensional electromechanical (motors working at the same temperature conditions will be lower than DC motors typically).

- Engine power saving by using permanent magnets 16 arranged on each side 2 side Roto 8 as a magnet drawing the picture of 4 and 4.

- Because the engine is powered by 4 double pole (8 brushes scan) should Roto at positions 4 pairs are generated torque to rotate the rotor at high speed, stability and torque.

- Due to special structure of the copper plate, so the brush as the engine to withstand wet environments, with water vapor.

Above is a typical technology invented by us, created in the past. All of them are applied in practice and promote all of its advantages Vietnamese. We hope with their new technology, we help society, contributing to the construction and renovation of the country.

SYNTHESIS OF 1.3-DIIOD-5.5-DIETHYL BARBITURIC ACID AND STUDY OF ITS IODINATING PROPERTIES.

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ABSTRACT

5,5-Diethylbarbituric acid (veronal) is an effective sedative and anticonvulsant preparation. The synthesis of halogen derivatives of veronal, the study of their chemical properties and biological activity are of practical interest both for organic chemistry and medicine. This paper proposes a method of synthesis of N, N-dibromo- and N, N-diiodderivatives (DIV) of 5,5-diethylbarbituric acid and study the N, N-diiod-5 ,5-diethyl barbituric acid (N,N-diiodveronal - DIV) properties with direct iodination of aromatic compounds with electron-acceptor and electron-donating substituents. For the first time, the synthesis of N, N-diiodveronal was carried out by the scheme: veronal → dibromveronal → diiodveronal. The solution of N, N-diodveronala in sulfuric acid is an effective reagent for iodination of aromatic compounds containing the electron acceptor groups in their structure. Six deactivated aromatic compounds were iodinated by obtained solution at 20 ° C, including nitrobenzene, and having used acetic acid as a solvent iod-derivatives of benzene, toluene, p-xylene and mesitylene were synthesized. The formation and structure of the electrophilic iodination particles formed by dissolving N, N-diiodveronala in sulfuric acid were studied by physico-chemical methods (UV, 13C NMR spectroscopy, GC-MS spectrometry).

Keywords: N, N-diiod-5 ,5-diethyl barbituric acid, iodination and aromatic compounds.

EXHAUSTED EXPLOITATION OF NTFPs IN BUFFER ZONE OF PUMAT NATIONAL PARK AND RECOMMENDATIONS FOR NTFPs'S SUSTAINABLE UTILIZATION.

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field of research: Natural resources Management

ABSTRACT

Pu Mat National Park is the central part of the Western Nghe An Biosphere Reserve, one of Vietnam's six areas. It consists of a core zone of 94,804ha and a buffer zone of 86,000ha and has rich biodiversity with about 2,500 species of plants and nearly 1,000 species of animals. Population in the buffer zone of PNP is about 350.000, include three ethnic groups (Thai, Tho, Danlai) and Kinh people. Local people's living depend on forest products's exploitation, especially non timber forest products (NTFPs). When, almost of animals of forest have been strictly baned, NTFPs that are plants were exploited for food, medicine and merchandises. There are total 622 plant species giving NTFPs under of 128 families of 5 vegetation branches used by inhabitants for their daily life and as goods in PNP. Among 622 species of NTFPs, there are 14 species belonging to rare and precious species named in Red Book of Vietnam, in which 145 species are exploited popularly 24 species of NTFPs have became merchandises. Local traditional knowledge oblivion, Lacking knowledge of NTFPs value, weak possibility of NTFPs market access, floating NTFPs market,... are causes of exhausted exploitation NTFPs species in Pumat National Park, harmful effect to biodiversity and local people's living.

Keywords: Non Timber Forest Products (NTFPs), buffer zone of Pumat National Park (PNP), exhausted exploitation, sustainable utilization.

ANTIPROLIFERATIVE ACTIVITY ON HeLa HUMAN CERVIX CANCER CELL LINE OF VIETNAMMESE MEDICINAL PLANTS

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ABSTRACT

 20 extracts were prepared from 13 medicinal plants collected in Nghean province and evaluated for their antiproliferative activities against HeLa human cervix cancer cells by test MTT 3- (4,5-dimethylthiazol-2-yl)-2,5-diphenyl tetrazolium bromide. Among them, three extracts from Erythropalum scandens, Pseuderanthemum palatiferum and Hedyotis diffusa showed inhibitory activity against Hela cells, in which extracts of H.diffusa have demonstrated the strongest activity. Assessing the effects of these three extracts on the expression of BCL-2 protein in cells by *Immunohistochemical* Staining Methods (MediaCybernetics, USA), results showed that no significant influence of the extracts tested for the expression of Bcl-2 protein in the experimental conditions of this study.

Key words: *extract, medicinal plants, antiproliferative activity, HeLa cell, apoptosis*

ASSESSMENT OF PHYTOCHEMISCAL COMPOUNDS AND ANTIOXIDANT CAPACITY OF SOME APIACEAE SPECIES IN VIETNAM

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ABSTRACT

Natural antioxidants play an important role in protect against oxidation damage by inhibiting or scavenging free radicals and reactive oxygen species, especially for treatment various diseases in human. The present study was undertaken to screen for ascorbic acid, total phenolics, and total flavonoids content of *Centella asiatica, Hydrocotyle bonariensis,* and *Hydrocotyle sibthorpioides*. Antioxidant activity of methanol extracts of the plant species were assayed using different methods; DPPH free radical scavenging assay, superoxide anion radical scavenging assay, ABTS radical cation scavenging assay and phosphomolybdate assay. The results showed that the highest ascorbic acid, total phenolics and total flavonoids content were found in the extract of *Centella asiatica*. All methanol extracts exhibited free radical scavenging activity and/or antioxidant ability, in which superoxide anion radical scavenging activity was the highest (EC_{50} values were from 60.28 ± 1.28 to 74.43 ± 1.07 µg/ml) and antioxidant capacity was the lowest (EC_{50} values were from 211.73 ± 2.96 to 227.26 ± 3.21 µg/ml).

POTENTIAL APPLICATION OF CYANOBACTERIA IN AGRICULTURE AND PHARMACY

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ABSTRACT

Cyanobacteria, also known as blue-green algae, blue-green bacteria, cyanoprokaryots, and cyanophytes, are oxygenic photosynthetic prokaryotes that possess features familiar to both bacteria (prokaryota) and algae (eukaryota). In recent years, cyanobacteria have gained a lot of attention because of their potential application in agriculture and pharmacy. This minireview will present an overview of the literature describing the uses of cyanobacteria in agriculture and pharmacy and provide an outlook on the challenges and future prospects of the field of cyanobacterial agriculture and cyanobacterial pharmacy. Recent studies showed that cyanobacteria have been identified as a rich source of biologically active compounds with insecticidal and herbicidal activities which can be used as natural pesticides and herbicide. During the last few years several novel and diverse metabolites combined with relevant pharmaceutical activities (e.g. antibiotic, enzymes, antiviral, anticancer, antifungal, and antiinflammatory agents as well as protease inhibitors) have been discovered from cyanobacteria which clearly indicates that cyanobacteria have a valuable potential for providing novel and diverse bioactive substances for drug discovery and can be considered a prime source for leads for drugs; this has stimulated researcher's efforts to find novel and pharmacologically active cyanobacterial metabolites.

Keywords: cyanobacteria, agriculture, pharmacy.

EVALUATION ATPase ACTIVITY AND TOTAL ANTIOXIDANT CAPACITY OF TELLURITE RESISTANCE OPERON IN BACTERIA

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ABSTRACT

The tellurite resistance determinants have been found in many species of bacteria, specially Gram-negetive bacteria. In bacterial cells, tellurite was reduced to black metallic tellurium to form a black colony. Tellurite resistance serves as a selection trait of several pathogenic bacteria and is conferred by various determinants including ter gene cluster formed by two associated parts (terWXYZ and terZABCDEF). Mechanism of tellurite resistance in microorganism is not fully understood. The role of individual proteins in tellurite resistance operon is still mysterious. The four essential genes of tellurite resistance operon are *terBCDE*. Here we determine the ATPase activity of essential Ter proteins (TerBCDE) and the total antioxidant capacity of four *Escherichia coli* strains containing tellurite resistance determinants. We have determined ATPase activity of TerBC protein. The 1 µg of purified protein has released 0.097 µg.min^{-1} ± 0.03 (TerB) or 0.23 µg.min^{-1} ± 0.06 (TerC) free inorganic phosphate. The TerDE proteins have no ATPase activity. The total antioxidant capacity of cell lysates of *E. coli* K12 was lower than others. Total antioxidant capacity is increased by addition of H_2O_2 and K_2TeO_3. We have also determined the antioxidants in culture medium. The total antioxidant capacity in culture media of *E. coli* K12 and *E. coli* O157:H7 was higher than others.

Key word: tellurite resistance, total antioxidant capacity, Ter operon, ATPase activity.

SOME MEASURES USED TO PREPARE FOR MATHEMATICS PEDAGOGICAL STUDENTS IN TRAINING HIGH SCHOOL STUDENTS HOW TO SELF-ASSESS THEIR OWN STUDYING RESULTS

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ABSTRACT

In this paper, we introduce three measures to prepare students of mathematics pedagogy for training general school pupils to self-assessing their results of learning, including: (1) In the process of teaching, lectures should concern in training students how to conduct self-assessment of studying results, (2) Teachers need to train students know how to carry out the standardize knowledge and skills in high school education program, (3) Students are explicitly provided some measures to understand how to practice self-assessment of studying results.

Keyword: assessment, self-assessment, measures, studying results, pedagogical students.