



**Benha University**



**Huazhong Agricultural  
University**

***Investigation of Potential Research Areas  
For Cooperation  
Between Benha University (Egypt)  
and  
Huazhong Agricultural University (China)  
December, 2016***

### Egyptian Delegation – Benha University



Prof. Elsayed Youssef Elkady  
President of Benha University  
Email: [president@bu.edu.eg](mailto:president@bu.edu.eg)



Prof. Mohamed Abo Salem  
Dean, Faculty of Veterinary Medicine  
Email: [mohamed.abosalem@fvtm.bu.edu.eg](mailto:mohamed.abosalem@fvtm.bu.edu.eg)  
(Veterinary Medicine)



Prof. Mahmoud Iraqi  
Dean, Faculty of Agriculture  
Email: [mahmoud.iraqi@fagr.bu.edu.eg](mailto:mahmoud.iraqi@fagr.bu.edu.eg)  
(Agriculture)



Prof. Tamer Samir Abdul Majeed  
Dean, Faculty Applied Arts  
Email: [tamer.abdelmagid@feng.bu.edu.eg](mailto:tamer.abdelmagid@feng.bu.edu.eg)  
(Material Engineering)



Prof. Osama Ezzat Abdellatif  
Faculty Engineering at Shoubra  
Email: [osama.abdellatif@feng.bu.edu.eg](mailto:osama.abdellatif@feng.bu.edu.eg)  
(Renewable Energy)

***Investigation of Potential Research Areas  
For Cooperation  
Between Benha University (Egypt)  
and  
Huazhong Agricultural University (China)  
(Material Engineering)  
December, 2016  
By  
Prof. Tamer Samir***

<b>Cooperation Between Benha University (Egypt) and Chinese Universities</b>	
<b>Potential Research Areas</b>	
<b>Faculty</b>	Faculty of Engineering at Shoubra
<b>Proposal Code</b>	ENG-MAT-1
<b>Principal Investigator</b>	Prof. Dr. El-Sayed Y. El-Kady
<b>E-mail</b>	EYEl-Kady@yahoo.com
<b>Research Title</b>	Surface Modification of A356/Al <sub>2</sub> O <sub>3</sub> Metal Matrix Nano-Composites Using a Combination of Friction Stir Processing (FSP) and Laser Energy.
<b>Background</b>	Surface composites are produced by impregnating the nano-particulates in the surface only while keeping the core free from it. The increase in strength is due to a reduction in defects associated with the presence of the hard phase, while the low cost is a result of using a lesser amount of the hard phase. Surface composites can be produced using several techniques including powder metallurgy, laser techniques and friction stir processing (FSP).
<b>Objectives</b>	In the present project, A356/Al <sub>2</sub> O <sub>3</sub> surface nano-composites will be fabricated using Friction Stir Processing (FSP). The surface composite will be fabricated using different tool rotational and traverse speeds, and number of passes. The effect of the aforementioned parameters on the microstructural, mechanical and tribological characteristics of the developed surface composites will be studied. High-power diode laser (HPDL) will be used for modification of the surface composites produced using FSP. The laser beam size, speed, power will be variable.
<b>Research Area(s)</b>	Materials Engineering
<b>Type (theoretical / Experimental)</b>	Experimental
<b>Duration</b>	2 years
<b>Expected Outcomes</b>	<ol style="list-style-type: none"> <li>1. Produce high quality A356/Al<sub>2</sub>O<sub>3</sub> Surface Metal Matrix Nano-Composites.</li> <li>2. Study the effect of FSP process parameters such as the tool rotational speed, feed rate and no. of passes on the microstructural, hardness and Tribological characteristics of the produced surface composites.</li> <li>3. Study the effect of the laser post-treatment on the aforementioned characteristics of the surface composites originally fabricated using FSP.</li> </ol>

<b>Cooperation Between Benha University (Egypt) and Chinese Universities</b>	
<b>Potential Research Areas</b>	
<b>Faculty</b>	Faculty of Engineering at Shoubra
<b>Proposal Code</b>	ENG-MAT-2
<b>Principal Investigator</b>	Tamer Samir Mahmoud
<b>E-mail</b>	Tamer.abdelmagid@feng.bu.edu.eg
<b>Research Title</b>	Improvement of Journal Bearings Performance using Copper/Nano-Graphite Functionally Graded Materials.
<b>Background</b>	Recently, journal bearings have been extensively used in most of rotating machinery like high speed and light weight rotating machinery that used in computer information storage, cars, cranes, marine engines, gas turbines, airplanes, space shuttles, ...etc. Of course, high performance of journal bearings will increase the efficiency, power losses and life time for such machines in addition to decreasing the running cost that used in such industries. Therefore, the improvement of the characteristics of the journal bearing is extremely important. Functionally graded material (FGM) is a relatively new class of composite materials, consisting of two or more phases, which is fabricated with its composition and/or microstructure varying in some spatial direction. Using FGM principle combinations of the properties of the constituent phases obtained. FGMs are of practical interest because the gradation of the physical and/or the chemical properties can be controlled.
<b>Objectives</b>	The aim of this project is to develop new generation of journal bearings that have superior mechanical and tribological characteristics based on graphite/copper FGM. In future, it is expected that, the journal bearing made of such materials will replace the traditional bearing materials to reduce the maintenance and running costs. In the developing countries, like Egypt, which looking forward for a new industrial revolution, the availability of high quality nationally made spare parts is a must. This will save millions (even billions) of dollars for the national economic.
<b>Research Area(s)</b>	Materials Engineering
<b>Type (theoretical / Experimental)</b>	Experimental
<b>Duration</b>	2 years
<b>Expected Outcomes</b>	<ol style="list-style-type: none"> <li>1. Produce high quality Cu/Gr journal bearing based on FGM by centrifugal casting.</li> <li>2. Understand the effect of centrifugal casting process parameters such as melt temperature, mould temperature, Gr preheat temperature, rotational speed on the microstructural and mechanical characteristics of FGM bearings.</li> <li>3. Understand the effect of sliding speed, sliding distance, and applied load on the wear resistance and coefficient of friction of FGMs.</li> </ol>

<b>Cooperation Between Benha University (Egypt) and Chinese Universities Potential Research Areas</b>	
<b>Faculty</b>	Faculty of Engineering at Shoubra
<b>Proposal Code</b>	ENG-MAT-3
<b>Principal Investigator</b>	Prof. Dr. Fouad Helmi Mahmoud
<b>E-mail</b>	FOUAD.HELMY@feng.bu.edu.eg
<b>Research Title</b>	A Novel Combined Slope Casting/Friction Stir Processing route for Manufacturing of Aluminium Nano-dispersed Plates
<b>Background</b>	Military systems are traditionally produced in steel because of its excellent mechanical properties and low cost, but suffers due to its high weight and poor corrosion resistance. The challenge seeks to identify revolutionary and promising new armour concepts for military vehicles. A secondary goal is to determine the feasibility of producing vehicle armour materials at a cost competitive to current vehicle armour. The present project uses several technologies that combine cooling slope casting and friction stir processing techniques for producing high strength, lightweight aluminum metal matrix nanocomposites (MMNCs) plates. This method allows for production of cost-effective plates with thickness up to 60 mm that can be used for military applications such as armours, as well as for future land, air, sea, and space platforms. Moreover, to lower the cost of production of the Al-MMNCs plates, the Al-Si alloys will be obtained from Egyptian Automotive parts scrap.
<b>Objectives</b>	The project aims to develop a technique that is capable of producing lightweight and high strength aluminum alloys reinforced with nanoceramic particulates. The new route is based on (1) cooling slope (CS) casting as a primary processing technique followed by (2) friction stir processing (FSP) as a secondary processing technique. The goal of the CS casting is to produce bulk ingots of aluminum MMNCs while the goal of FSP technique is heal the casting from the defects and/or improves its structure.
<b>Research Area(s)</b>	Materials Engineering
<b>Type (theoretical / Experimental)</b>	Experimental
<b>Duration</b>	2 years
<b>Expected Outcomes</b>	<ol style="list-style-type: none"> <li>1. Developing a new technique based on cooling slope (CS) casting and Friction stir processing (FSP) for production of MMNCs with high quality and low cost.</li> <li>2. Identifying the most suitable production CS casting and FSP parameters for producing Al MMNCs.</li> <li>3. Identifying the morphology and distribution of the nano-dispersions in the Al MMNCs.</li> <li>4. Evaluating the mechanical characteristics of the Al MMNCs at both room and elevated temperatures.</li> <li>5. Understanding fracture mechanisms in Al MMNCs at both room and elevated temperatures.</li> </ol>

<b>Cooperation Between Benha University (Egypt) and Chinese Universities</b>	
<b>Potential Research Areas</b>	
<b>Faculty</b>	Faculty of Engineering at Shoubra
<b>Proposal Code</b>	ENG-MAT-4
<b>Principal Investigator</b>	Prof. Dr. Hossam El-Deen M. Zakaria
<b>E-mail</b>	<a href="mailto:h.zakaria@yahoo.com">h.zakaria@yahoo.com</a> ; <a href="mailto:hossam_z@yahoo.com">hossam_z@yahoo.com</a>
<b>Research Title</b>	Development of new alloys composition for Semi-Solid Metal (SSM) Forming technology
<b>Background</b>	Semi-solid forming (SSF) represents new technology for manufacturing details with complex form or shape. Many companies already today adopted this technology in industrial scale and interested in expansion of the assortment of the alloys capable to such processing. The technical and economic advantages of SSF technology already today allow making various details for motor and aircraft industries. Unfortunately, until now the spectrum of the materials, exposed to semi-solid processing was limited to aluminum alloys, in particular, A356/A357 (AlSi7Mg). For successful semi-solid processing of alloys, the obtained microstructure should have non-dendritic (globular) grains. One of the ways for producing such structure is the three-stage technology including rheocasting, reheating of the billet received from the first stage, and finally forming. Since not every alloy can be produced using SSF techniques, therefore they should be specially chosen. The fundamental basis of such choice is the "fraction liquid versus temperature" (FLVT) curves during solidification. Such curve can be constructed using the different thermal analysis methods including differential scanning calorimeter (DSC) or differential thermal analysis (DTA), but the most productive way is the approach offered by us and based on thermodynamic modeling (TDM) methods. Such approach yields adequate results and can reduce the hard and expensive experimental investigations.
<b>Objectives</b>	The purpose of work is to search for new alloy compositions for SSF technology. The research includes ferrous and nonferrous metals which have industrial use and can be processed successfully in semi-solid state.
<b>Research Area(s)</b>	Materials Engineering
<b>Type (theoretical / Experimental)</b>	Experimental/Theoretical
<b>Duration</b>	2 years

<b>Expected Outcomes</b>	<ol style="list-style-type: none"><li>1. Development of the several principles (parameters) based on the analysis of FLVT curves of the alloy during solidification, which can be used for selection of alloy compositions for three-step SSF technologies.</li><li>2. Thermodynamic forecasting of new alloy compositions based on the developed principles, for aluminum, magnesium, zinc, tin, and also cast iron alloys.</li><li>3. Verification of thermodynamic forecasting results by carrying out DSC and DTA experiments to construct FLVT curves for several aluminum and tin alloys.</li><li>4. Preparation and casting of selected alloys having optimum compositions to get the required thixotropic microstructure and investigating it.</li></ol>
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<b>Cooperation Between Benha University (Egypt) and Chinese Universities</b>	
<b>Potential Research Areas</b>	
<b>Faculty</b>	Faculty of Engineering at Shoubra
<b>Proposal Code</b>	ENG-MAT-5
<b>Principal Investigator</b>	Prof. Dr. Abdel-Salam Hemid
<b>E-mail</b>	hemaid55@yahoo.com
<b>Research Title</b>	Microstructural and Mechanical Characteristics of dissimilar aluminum/titanium Plates joined using friction stir welding (FSW)
<b>Background</b>	The joining of titanium alloy with aluminium alloy could have a major application in the field of aerospace and automobile industry where high strength and low weight are desirable. However, fusion welding joints between titanium and aluminium exhibit inferior mechanical properties due to the formation of brittle intermetallic phases in weld. Friction stir welding (FSW) is a solid-state welding process in which materials are joined by frictional heat. Therefore, FSW enables materials to be joined without the formation of blowholes. The FSW has been applied to the joining of Al alloys, Mg alloys, Ti alloys and Fe alloys. FSW has been also applied to dissimilar alloys such as Al/Mg, Al/Steel and dissimilar Al/Al alloys. These materials were successfully joined and also showed higher mechanical properties.
<b>Objectives</b>	The purpose of work is to study the possibility of joining pure Al and Ti plates using FSW. The effect of FSW process parameters (such as tool rotational speed and welding speed) on the microstructural and mechanical characteristics of the welded joints will be studied.
<b>Research Area(s)</b>	Materials Engineering
<b>Type (theoretical / Experimental)</b>	Experimental
<b>Duration</b>	2 years
<b>Expected Outcomes</b>	<ol style="list-style-type: none"> <li>1. Produce Al/Ti Lap joints using friction stir welding (FSW) joint.</li> <li>2. Understand the effect of the FSW process parameters on the microstructural &amp; Mechanical characteristics from both mechanical and metallurgical points of view.</li> <li>3. Understand the joining mechanism of FSW Al and Ti alloys.</li> </ol>

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For Cooperation  
Between Benha University (Egypt)  
and  
Huazhong Agricultural University (China)  
(Agriculture)  
December, 2016  
By  
Prof. Mahmoud Iraqi***

<b>Cooperation Between Benha University (Egypt) and Chinese Universities Potential Research Areas</b>	
<b>Faculty</b>	Agriculture
<b>Proposal Code</b>	Agriculture -1
<b>Principal Investigator email</b>	Prof. Dr. Mahmoud Iraqi <a href="mailto:mahmoud.iraqi@fagr.bu.edu.eg">mahmoud.iraqi@fagr.bu.edu.eg</a>
<b>Research Title</b>	Quantitative Trait Loci (QTL) for some growth and egg production traits in chickens
<b>Background</b>	<ul style="list-style-type: none"> <li>• In QTL study, it is aimed to determine the most effective genes and chromosomal regions for the quantitative trait and to use this information in genomic selection. Many molecular markers have become excellent means for the study of genetic variation.</li> <li>• A better understanding of chicken QTL may facilitate the accurate selection of immature chickens. Therefore, Marker-assisted selection (MAS) of immature females and males should greatly enhance genetic progress for egg character and production traits through accurate selection and accelerate genetic improvement at a young age.</li> <li>• The identification and utilization of QTL provide more rapid genetic improvement in selection programs, especially for traits that are difficult to improve with traditional selection programs.</li> <li>• The improvement of egg quality traits by traditional breeding methods is difficult because the phenotypic measurements are time consuming, and their use in breeding programs are complicated due to unfavorable negative correlations with other relevant traits. Therefore, direct selection of males based on their actual genotypes for important genes or markers linked to these genes (i.e. marker-assisted selection, MAS), rather than on their estimated breeding value, could greatly enhance the breeding program for egg quality traits.</li> </ul>
<b>Research Area(s)</b>	Egg production
<b>Type (theoretical / Experimental)</b>	Applied Experimental
<b>Duration</b>	24 months
<b>Expected Outcomes</b>	<ul style="list-style-type: none"> <li>• The genome wide QTL mapping in F7 populations lays the foundation for identifying the DNA variants causally responsible for variation in growth and egg production traits in chickens. To utilize these results for further identifying causative functional genes or using marker assisted selection (MAS) in poultry improvement program, the detection of fine mapping QTL is required or the segregation of QTL within commercial population is being to be verified before further efforts are made.</li> <li>• This project will be considered as a starting point of collaboration between the Egyptian-Chinese universities to exchange of knowledge, new techniques and experiences.</li> </ul>

<b>Cooperation Between Benha University (Egypt) and Chinese Universities</b>	
<b>Potential Research Areas</b>	
<b>Faculty</b>	Agriculture
<b>Proposal Code</b>	Agriculture -2
<b>Principal Investigator</b>	Prof. Dr. Mahmoud Iraqi
<b>email</b>	mahmoud.iraqi@fagr.bu.edu.eg
<b>Research Title</b>	Identification of Loci for immune traits in Egyptian and Chinese chickens using a Genome-Wide Association study
<b>Background</b>	<ul style="list-style-type: none"> <li>• Immune capacity associated with specific diseases may be useful indicators for indirect selection for general disease resistance, because such traits can be evaluated and quantified in live animals.</li> <li>• Immunological characteristics such as antibody titers have been shown to be heritable in poultry, indicating the possibility of discover loci or genes related to immune or disease resistance traits.</li> <li>• Previous studies have found immune traits located in several chromosomal regions in chickens by microsatellite markers, and quantitative trait loci (QTLs) have been reported to be linked to the immune traits on chicken (<i>Gallus gallus</i>) chromosomes.</li> <li>• More recently, genome wide association studies (GWASs) have become one of the most commonly used strategies for identifying genes for complex traits in humans, as well as in animals.</li> <li>• In chickens, some major loci associated with resistance to Marek's disease and immune response to Newcastle disease virus and infectious bronchitis virus were identified by GWASs. Despite these studies, there is still limited information about the multiple immune traits that underly the full immune response at the genome-wide level in chickens.</li> <li>• The genetic improvement of disease resistance in poultry continues to be a challenge.</li> <li>• To identify candidate genes and loci responsible for these traits, genome-wide association studies using the chicken high density single nucleotide polymorphism (SNP) array for immune traits might be useful.</li> <li>• RT-qPCR will be used to quantify the relative expression of the identified candidate genes.</li> </ul>
<b>Research Area(s)</b>	Chicken
<b>Type (theoretical / Experimental)</b>	Applied Experimental
<b>Duration</b>	24 months
<b>Expected</b>	✓ This study will aimed to identify major genomic regions (loci) and candidate genes associated with the immune response using GWAS for

<b>Outcomes</b>	an array of important immune traits including: <ul style="list-style-type: none"><li>✓ total serum concentrations of immunoglobulin Y (IgY).</li><li>✓ Numbers of, and the ratio of heterophils and lymphocytes (H/L).</li><li>✓ Antibody responses against Avian Influenza Virus (AIV) and Sheep Red Blood Cells (SRBC) in chickens.</li><li>✓ The GWAS approach may offer valuable information for understanding the molecular mechanisms of the regulation of immune traits and facilitate the application of marker-assisted selection in breeding programs for disease resistance in the new synthetic Egyptian strain of chickens as well as the endogenous Chinese chickens.</li></ul>
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<b>Cooperation Between Benha University (Egypt) and Chinese Universities Potential Research Areas</b>	
<b>Faculty</b>	Agriculture
<b>Proposal Code</b>	Agriculture -3
<b>Principal Investigator email</b>	Prof. Dr. Mahmoud Iraqi mahmoud.iraqi@fagr.bu.edu.eg
<b>Research Title</b>	Genetic diversity and conservation of Egyptian and Chinese chickens selected for egg production
<b>Background</b>	<p>Egyptian local chickens are subdivided into three groups according to their external morphology. The first group includes pure native breeds, as Fayoumi and Dandarawy. The second group includes mongrel fowl, such as the Baladi and Sinai strains, which originated from hybridization among exotic and Egyptian autochthonous chickens continued along with different times of old trade dispersal and colonization to Egypt. The third group includes improved local strains which originated from crossing between local and standardized exotic chicken strains accompanied by selection for fast growth, such as El-Salam strain and for high egg production, such as Golden Montazah strain and Benha line.</p> <p>With regard to the commercial sector in Egypt, commercial broilers have contributed 63% of the total poultry production. This could reflect the substantial growing of commercial chicken industries in Egypt at the expense of native chicken resources, improvement and maintenance. Egypt possesses versatile varieties of chickens including local types highly adapted to harsh conditions and thought to constitute genetic reservoirs. For instance, the Fayoumi breed has been demonstrated by several studies to possess increased resistance to coccidiosis and Marek's disease, and can thus be seen as a unique breed from the viewpoint of disease resistance. Similarly, there is evidence for superiority in heat tolerance, of Sinai strain over White Leghorn and broiler chicks.</p>
<b>Research Area(s)</b>	Chicken
<b>Type (theoretical / Experimental)</b>	Applied Experimental
<b>Duration</b>	24 months
<b>Expected Outcomes</b>	The present study will aimed to evaluate the genetic diversity and the breed contribution to aggregate genetic diversity in order to set the priorities for conservation of Egyptian chickens based on microsatellite genetic markers of two breeds of Egyptian chickens (PP line of Fayoumi, Benha line), two exotic breeds raised in Egypt (White Leghorn, Rhode Island Red) and one strain of Chinese chickens selected for egg production (to be defined).

<b>Cooperation Between Benha University (Egypt) and Chinese Universities</b>	
<b>Potential Research Areas</b>	
<b>Faculty</b>	Agriculture
<b>Proposal Code</b>	Agriculture -4
<b>Principal Investigator</b>	Dr. Sheriff Elgioushy
<b>email</b>	sherif.elgioushy@fagr.bu.edu.eg
<b>Research Title</b>	Expansion in cultivating nut trees in Sinai and Suez Canal corridor
<b>Background</b>	<p>Sinai development is an important strategic objective facing state at present. It is known that there are wide uncultivated areas in Sinai despite its suitability for cultivation. Cultivating nut trees can share in development of Sinai. The state spends a lot of hard currency annually to import nut fruits (almond-walnut and pistachio) to apply market needs of these crops especially in Ramadan month.</p> <p>There are scarcity of these trees in the Arab Republic of Egypt in spite of the relevance of environmental conditions for growing nut trees in different regions. The project aims to achieve self sufficiency of these crops by planting in Sinai Peninsula, where the environmental conditions are suitable for growth and fruiting of these trees and able to bear fruit having the same quality of the imported ones. As well as guiding the Bedouin how to carry out the horticultural practices in the most appropriate dates and help in avoiding the cultivation of the forbidden plantations , as well as providing job opportunities for young graduates and thereby contribute to the project in the state's plan to solve this problem.</p>
<b>Research Area(s)</b>	Horticulture
<b>Type (theoretical / Experimental)</b>	Applied Experimental
<b>Duration</b>	24 months
	<ul style="list-style-type: none"> <li>• Reducing import nut fruits for saving the hard currency.</li> <li>• Expansion in cultivating nut tree aiming to reach to self sufficiency of these crops in Sinai and Suez Canal corridor.</li> <li>• Provide additional income for farmers in North and south Sinai to implement the government's plan to help the Bedouins to</li> </ul>

<b>Expected Outcomes</b>	<p>avoid cultivating illegal plantations.</p> <ul style="list-style-type: none"><li>• Guiding farmers how and when to carry out horticultural practices aiming to raise productivity of trees and improving fruit quality.</li><li>• Using slow release fertilizers and organic manures instead of the mineral fertilization.</li><li>• Intercropping with some useful crops such as legumes between the rows of trees in order to offer an additional income to farmers and to provide trees by natural elements.</li><li>• Solving some problems facing propagation of nut cuttings such as walnut (hard to root).</li></ul>
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<b>Cooperation Between Benha University (Egypt) and Chinese Universities</b>	
<b>Potential Research Areas</b>	
<b>Faculty</b>	Agriculture
<b>Proposal Code</b>	Agriculture -5
<b>Principal Investigator</b>	Dr. Rasha M. El-Meihy
<b>email</b>	rashaelmehy@fagr.edu.bu.eg
<b>Research Title</b>	bioconversion of lignocellulose materials into biofuel
<b>Background</b>	<ol style="list-style-type: none"> <li>(1) Fullest utilization of wastes in the country for the better management.</li> <li>(2) Selection of right pretreatment and detoxification strategy.</li> <li>(3) Cellulase production and development of cellulolytic strains and ethanol producing strains from pentose and hexose sugars showing inhibitor resistance, ethanol tolerance, and faster sugar conversion rates.</li> <li>(4) Process intensification: hydrolysis and fermentation together in one place</li> <li>(5) Cheap, fast, and effective ethanol distillation.</li> <li>(6) Integration of bioethanol producing units with sugar/distilleries for the co-utilization of machinery, reactors, and other equipment.</li> <li>(7) Maximum by products utilization</li> <li>(8) Environmental protection.</li> <li>(9) Government subsidies to promote the renewable energy.</li> <li>(10) Encouragement of private investments.</li> </ol>
<b>Research Area(s)</b>	Microbiology
<b>Type (theoretical / Experimental)</b>	Applied Experimental
<b>Duration</b>	24 months
<b>Expected Outcomes</b>	<ul style="list-style-type: none"> <li>• Optimization the benefit of agricultural wastes and produce economically valuable compounds.</li> <li>• Reduce the output pollution from the accumulation of agricultural wastes.</li> <li>• Biofuel "Biofuel" production.</li> </ul>

<b>Cooperation Between Benha University (Egypt) and Chinese Universities</b>	
<b>Potential Research Areas</b>	
<b>Faculty</b>	Agriculture
<b>Proposal Code</b>	Agriculture -6
<b>Principal Investigator</b>	Dr. Atallah Mabrouk
<b>email</b>	<a href="mailto:atallah.mabrouk@fagr.bu.edu.eg">atallah.mabrouk@fagr.bu.edu.eg</a>
<b>Research Title</b>	Establishment and optimization of different vegetarian diets as new functional foods: Innovation of novel vegetarian diets recipes.
<b>Background</b>	<p><b>Recently, the production of these vegetarian diets (VDs) is very interesting toward their health benefits. But, during the production of those diets, many challenging could be affecting them such as its deficiency in their content of iron, omega-3 and vitamin B12. On the other hand the phytochemicals was also affected drastically after cooking. Moreover, the bioavailability of some food matrixes is still not clearly understood. So, the presented idea aimed to formulate new different vegetarian recipes from common consumed vegetables, fermented dairy products, sufficient plant protein source (untraditional sources) and some edible ingredients where saving the meat consumption and increasing the health benefits.</b></p> <p><b>Also, may fortified using a novel trends (Nano-Fe<sup>++</sup>-ω3 incorporated with CH) before they presented. Moreover, they could be produced in different form both fermented and unfermented. All parameters will be evaluated. Identification of different bioactive compounds could be carried out. Using the HPLC-DAD and HPLC-online TEAC, antioxidant capacity of each identified component will be carried out. The effect of coating on phenolics and sterols oxidation after cooking could be investigated. The application is focused on an evaluation system for functional foods that is based on human intestinal cells and a model of human intestinal microflora.</b></p>
<b>Research Area(s)</b>	Food sciences
<b>Type (theoretical / Experimental)</b>	Applied Experimental
<b>Duration</b>	24 months
<b>Expected Outcomes</b>	<p><b>1- Starting up and collection data during the whole period of the project</b></p> <p><b>2- Make composition data of all raw materials used in this project</b></p> <p><b>3- Get the adapted VDs as new functional foods and selecting the best</b></p>

**cooking methods.**

**4- Get good Information about the handling way and services data**

**5- Get the adapted VDs as new functional foods with new probiotic bacteria and new functional features.**

**6- Get the phytochemicals profile of VDs and their changes after cooking by different cooking methods.**

**7- Moreover have the antioxidant capacity impact for prepared VDs.**

**8- Get impact about the vitamins bioavailability.**

**9- Get identification of different saponins, and isoflavones and their health effect.**

**10- Have an overview about the shelf-life stability and expected expiration date**

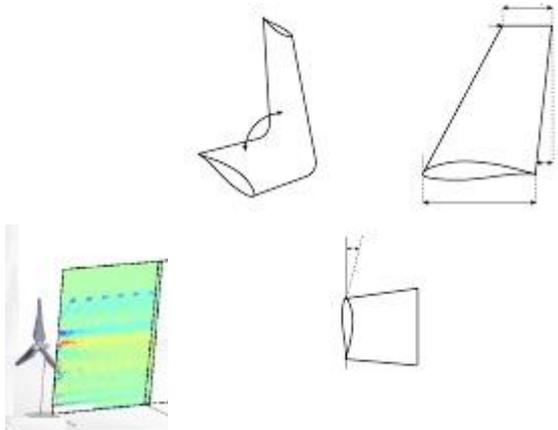
<b>Cooperation Between Benha University (Egypt) and Chinese Universities</b>	
<b>Potential Research Areas</b>	
<b>Faculty</b>	Agriculture
<b>Proposal Code</b>	Agriculture -7
<b>Principal Investigator</b>	Dr. Atallah Mabrouk
<b>email</b>	<a href="mailto:atallah.mabrouk@fagr.bu.edu.eg">atallah.mabrouk@fagr.bu.edu.eg</a>
<b>Research Title</b>	Utilization of by-products for the dairy industry in the preparation of some dairy products with functional and nutritional value and high economic
<b>Background</b>	<p><b>Whey and butter milk consider as a by-product of the cheese and butter industry is a source of biological and functional valuable proteins, fat, minerals and lactose. Recently, the utilization of these by-products is very interesting toward their health benefits and environmental contaminations. Whey contains more than half of the solids present in the original whole milk, including whey proteins (20% of the total protein) and most of the lactose, water-soluble vitamins and minerals. Consequently, whey and butter milk can be considered a valuable by-product with several applications in the food and pharmaceutical industries. Also, production of lactic beverages, cheese butter milk and whey cheese has several advantages. They have been used as an important vehicle for probiotics. In addition, lactic acid bacteria (LAB) produce different inhibitory substances that can prolong the self life of the fermented products. Reduction of lactose content in permeate by LAB fermentation is an effective way to avoid lactose intolerance; a serious problem for a significant sector of consumers.</b></p> <p><b>A fermented dairy beverage and cheese were made with butter milk and whey, and characterized as an important source due to the presence of protein with a high biological value that is mostly derived from whey, a major raw material. The production of dairy beverages and cheese has been increasing worldwide due to their simple production technology and wide acceptance by consumers; they have been characterized as an alternative use for the whey from cow and buffaloes milk resulting from cheese and butter production. Because of its nutritional value of various components, whey is used in numerous food applications, e.g., ice cream and puddings. Also, may fortified using a novel trends (Additives, fruits, probiotic and prebiotic) before they presented. Moreover, they could be produced in different form both fermented and unfermented. All parameters will be evaluated. Identification of different bioactive compounds could be carried out. The application is focused on an evaluation system for functional foods that is based on milk by-product i.e. (biological, economical and reducing the environmental pollution</b></p>

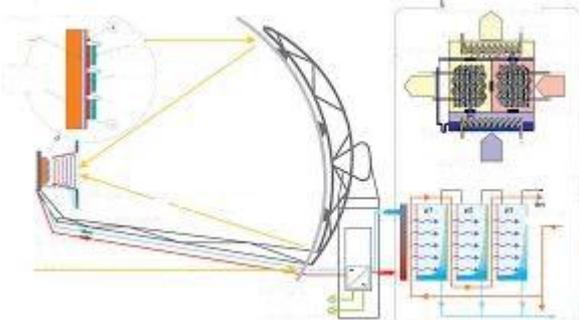
	<b>due to some of these dairy products).</b>
<b>Research Area(s)</b>	Food sciences
<b>Type (theoretical / Experimental)</b>	Applied Experimental
<b>Duration</b>	24 months
<b>Expected Outcomes</b>	<ol style="list-style-type: none"> <li><b>1- Starting up and collection data during the whole period of the project</b></li> <li><b>2- Make composition data of all raw materials used in this project</b></li> <li><b>3- Get the adapted formulates as new functional foods and selecting the best preparing methods.</b></li> <li><b>4- Get good Information about the handling way and services data</b></li> <li><b>5- Get the adapted formulates as new functional foods with new probiotic bacteria and new functional features.</b></li> <li><b>6- Get the active compounds profile of formulates and identification of different compounds.</b></li> <li><b>7- Get impact bout the vitaminsbioavailability.</b></li> <li><b>8- Get identification of different organic acids their health effect.</b></li> <li><b>9- Have an overview about the shelf-life stability and expected expiration date</b></li> <li><b>10- Have more info and facts about nutritional facts and understand the relation between the formulated beverage, other products and standard human requirements.</b></li> </ol>

<b>Cooperation Between Benha University (Egypt) and Chinese Universities</b>	
<b>Potential Research Areas</b>	
<b>Faculty</b>	Agriculture
<b>Proposal Code</b>	Agriculture -8
<b>Principal Investigator</b>	Dr. Mohamed Khairy Morsy
<b>email</b>	mohamed.abdelhafez@fagr.bu.edu.eg
<b>Research Title</b>	Natural antimicrobial and nanotechnology techniques to improve the quality and safety of meat products
<b>Background</b>	<p>The main objectives of this proposal are:</p> <ul style="list-style-type: none"> <li>✓ To improve the quality and safety of Egyptian or Chinese food products (plant and/or animal origin).</li> <li>✓ To evaluate the antibacterial activity of garvieacin Q, bacteriophage, algae, and plant extracts against foodborne pathogens microorganisms (<i>Escherichia coli</i> O157:H7, <i>Salmonella</i> spp., <i>Staphylococcus aureus</i>, and <i>Listeria monocytogenes</i>).</li> <li>✓ To apply nanotechnology as an innovative method for detection and/or prevention foodborne pathogens.</li> </ul>
<b>Research Area(s)</b>	Food sciences
<b>Type (theoretical / Experimental)</b>	Applied Experimental
<b>Duration</b>	24 months
<b>Expected Outcomes</b>	<p>Results derived from this study would provide beneficial information to researchers, authorities and/or food producers who are interested the food safety of Egyptian products.</p> <ul style="list-style-type: none"> <li>➤ Applying novel antimicrobials in Egyptian or Chinese foods will improve quality and safety.</li> <li>➤ Nanotechnology technique will provide accurate, easy-use, and rapid detection and/or prevention strategies for foodborne pathogens.</li> <li>➤ Increase Egyptian or Chinese exports to many countries in the world.</li> </ul>

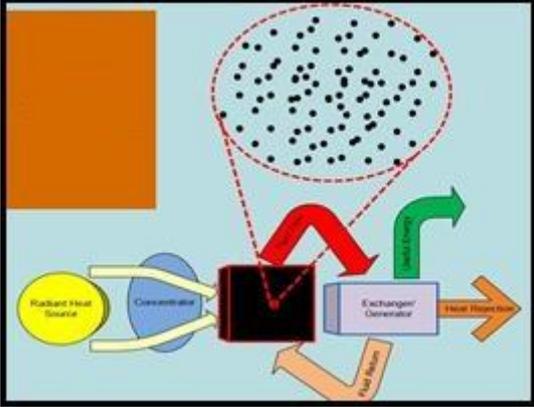
<b>Cooperation Between Benha University (Egypt) and Chinese Universities</b>	
<b>Potential Research Areas</b>	
<b>Faculty</b>	Agriculture
<b>Proposal Code</b>	Agriculture -9
<b>Principal Investigator</b>	Dr. Mahmoud Alhabbaq
<b>email</b>	mmhabbaq@fagr.bu.edu.eg
<b>Research Title</b>	THE IMPACT OF CHINESE INVESTMENT ON THE RURAL DEVELOPMENT IN EGYPT
<b>Background</b>	<p>Foreign direct investment has a major role to play in the economic development of the host country. Any form of foreign direct investment pumps in a lot of capital knowledge and technological resources into the economy of a country.</p> <p>There is general recognition of the importance of foreign direct investment on the host and home economy, but this research looking to estimate the role of the Chinese direct investments on rural development in Egypt and how to promote it to improve the rural economy in Egyptian villages. in addition the ways to activate win-win policy and south-south cooperation</p>
<b>Research Area(s)</b>	Agriculture economics
<b>Type (theoretical / Experimental)</b>	Applied Experimental
<b>Duration</b>	24 months
<b>Expected Outcomes</b>	<p>1- Study the historical and current situation of FDI in general and particularly Chinese direct investment (CDI)</p> <p>2- Conceive the scenarios of CDI's flows in Egypt and it's impact on rural economy in Egypt</p> <p>3- Study the economic feasibility of the agro-projects with focus on green investment projects</p> <p>4- Draw conclusions and implications on the importance and benefits of increasing CDI in Egypt to both countries (China &amp; Egypt)</p> <ul style="list-style-type: none"> <li>• The research will focus on the main fields of agricultural production, agricultural processing, genetic improvement and recycling of agricultural wastes</li> </ul>

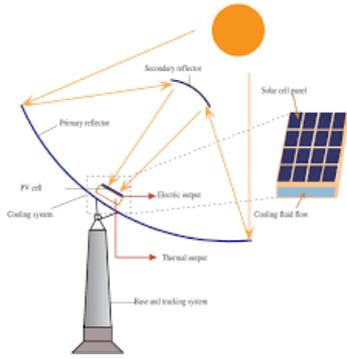
***Investigation of Potential Research Areas  
For Cooperation  
Between Benha University (Egypt)  
and  
Huazhong Agricultural University (China)  
(Renewal Energy)  
December, 2016  
By  
Prof. Osama Ezzat***

<b>Faculty</b>	<b>Engineering- Shoubra</b>
<b>Proposal Code</b>	<b>Ren Energy-1</b>
<b>Principal Investigator</b> <b>email</b>	<b>Prof. Osama Ezzat Abdellatif</b> <b>Osama.abdellatif@feng.bu.edu.eg</b>
<b>Research Title</b>	<b>Effect of Winglet on Wind Turbine Performance and Wake Characteristics</b>
<b>Background</b>	 <p>It is suggested to perform numerical and experimental study to show winglet effect on horizontal axis wind turbine performance. Numerical study will be performed by using CFD of Ansys 17. CFD will be suitable tool to predict wake characteristics and winglet effect on tip vortex. Experimental work will be performed in wind tunnel to verify of numerical prediction and to apply actual modifications.</p>
<b>Research Area(s)</b>	<b>Power Generation</b>
<b>Research Type</b>	<b>Numerical and Experimental</b>
<b>Duration</b>	<b>24 months</b>
<b>Expected Outcomes</b>	<b>Improving the output power by the effect of winglet</b>

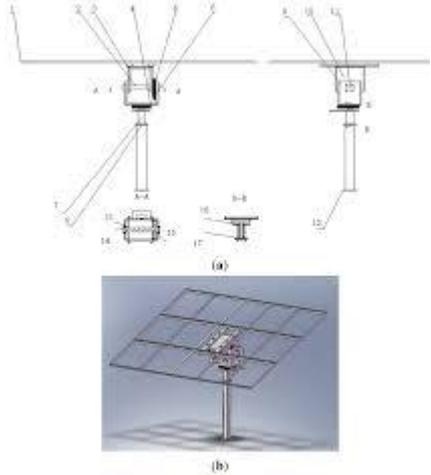
<b>Faculty</b>	<b>Engineering- Shoubra</b>
<b>Proposal Code</b>	<b>Ren Energy-2</b>
<b>Principal Investigator email</b>	<b>Prof. Osama Ezzat Abdellatif Osama.abdellatif@feng.bu.edu.eg</b>
<b>Research title</b>	<b>Effect of Various Cooling Techniques for Cooling Concentrated Photo voltaic Cells CPVs</b>
<b>Background</b>	<p>Renewable energies including solar, wind and geothermal energy are the major trend line for energy systems as the main alternative source for fossil fuels. Photovoltaic cells are one of the most important techniques to convert sun light to electric energy. But due to heat storage through it, its efficiency decreases and also the power output decrease. This research aims to use various cooling techniques including heat pipes, vapor chamber and PCM and investigate their effect on the performance of concentrated photovoltaic cells. Concentration will be made either by lenses or parabolic dish concentrator to maintain various concentration ratios. Multi junction cells will be used also as a solar cell due to their high efficiency and quality.</p> 
<b>Research Area(s)</b>	<b>Renewable energy- Solar energy</b>
<b>Type (theoretical, experimental )</b>	<b>both theoretical and experimental</b>
<b>Duration</b>	<b>24 months</b>
<b>Expected Outcomes</b>	<p>The Expected Outcomes are as follow</p> <ol style="list-style-type: none"> <li>1 - Increase of the efficiency and output power of CPV.</li> <li>2 - Feasibility study for more saving that CPV are better to use rather than PV cells alone.</li> <li>3 - Increase of overall combined PV/T thermal efficiency.</li> </ol>

<b>Faculty</b>	<b>Engineering- Shoubra</b>
<b>Proposal Code</b>	<b>Ren Energy-3</b>
<b>Principal Investigator email</b>	<b>Prof. Osama Ezzat Abdellatif</b> <b>Osama.abdellatif@feng.bu.edu.eg</b>
<b>Research Title</b>	<b>Numerical and Experimental Analysis for a Vertical Axis Wind Turbine</b>
<b>Background</b>	  <p><b>Vertical Axis Wind Turbines (VAWTs) are good candidates to extract energy from wind in urban areas because they are easy to be installed, maintained and do not generate much noise; however, the aerodynamic efficiency of small turbines is low. Here-in a new turbine, with high aerodynamic efficiency, is proposed.</b></p>
<b>Research Area(s)</b>	<b>Power Generation</b>
<b>Research Type</b>	<b>Numerical and Experimental</b>
<b>Duration</b>	<b>24 months</b>
<b>Expected Outcomes</b>	<b>Decreasing cut-in speed and increasing power coefficient</b>

<b>Faculty</b>	<b>Engineering- Shoubra</b>
<b>Proposal Code</b>	<b>Ren Energy-4</b>
<b>Principal Investigator email</b>	<b>Prof. Osama Ezzat Abdellatif Osama.abdellatif@feng.bu.edu.eg</b>
<b>Research title</b>	<b>Thermal Energy Cool Storage by Nanoparticles fluids</b>
<b>Background</b>	<p>The objective of the present work is to investigate experimentally and theoretically the charging and discharging of water contained inside the spherical capsules. The parameters studied include the spherical capsule material, spherical capsule size, mass flow rate and temperature of the HTF. Experiments are carried out to study the effect of the mentioned parameters on the dimensionless time for complete charging/discharging, the solidified/melted mass fraction, the percentage of energy stored/regained, the charging/discharging rate, and the energy recovery ratio (ERR). To achieve the aforementioned needs, an experimental test rig is designed and fabricated to carry out the heat transfer experiments.</p> 
<b>Research Area(s)</b>	<b>HVAC systems</b>
<b>Type (theoretical, experimental)</b>	<b>Theoretical and Experimental</b>
<b>Duration</b>	<b>24 months</b>
<b>Expected Outcomes</b>	<b>study the effect of the mentioned parameters on the dimensionless time for complete charging/discharging</b>

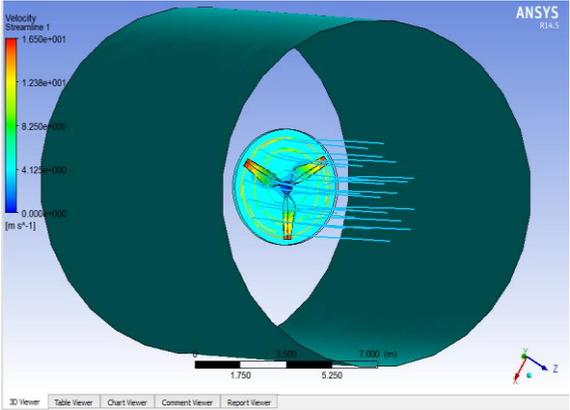
<b>Faculty</b>	<b>Engineering- Shoubra</b>
<b>Proposal Code</b>	<b>Ren Energy-5</b>
<b>Principal Investigator email</b>	<b>Prof. Osama Ezzat Abdellatif Osama.abdellatif@feng.bu.edu.eg</b>
<b>Research title</b>	<b>Design and implementation of cooling system for concentrated photovoltaic system</b>
<b>Background</b>	<p>Concentrated photovoltaic (CPV) system helps in focusing the direct solar radiation on the photovoltaic module. The CPV systems use lenses or mirrors and tracking systems to focus a large area of sunlight into a small beam. As the Concentrated Solar radiation reaches the PV panel system, the temperature increases rapidly and because of this increase in temperature, the output efficiency will be decreased. In order to reduce the temperature and to increase the output efficiency, the Cooling System is used. It has been found that the electrical output of the water cooled CPV is more than the PV module (without concentration and cooling). The performance of the CPV module with cooling system based on voltage output and temperature were evaluated and verified with the help of an experimental setup.</p> 
<b>Research Area(s)</b>	- <b>Renewable energy. solar energy.</b>
<b>Type (theoretical, experimental)</b>	- <b>The experimental work includes study the different techniques for increasing the efficiency of the photovoltaic (PV) cell (concentrating photovoltaics (CPV) - cooling techniques for (PV))</b> - <b>The theoretical work using computational fluid dynamics (CFD) simulation using a commercial CFD code ANSYS.</b>
<b>Duration</b>	<b>24 months</b>
<b>Results Expected</b>	<b>The investigation of the performance of the cooling system for Concentrated photovoltaic (CPV) system and select the optimum design for the system.</b>

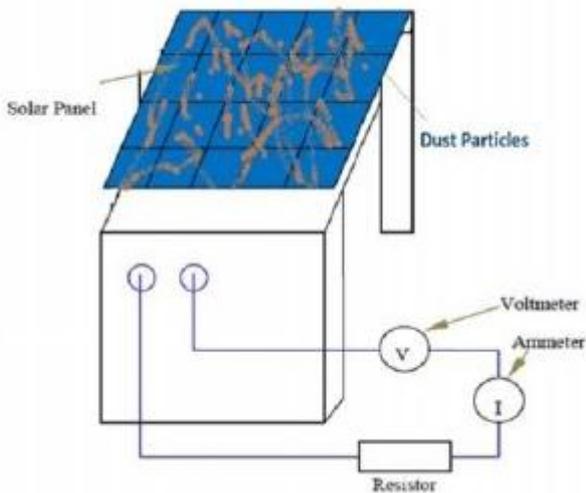
<b>Faculty</b>	<b>Engineering- Shoubra</b>
<b>Proposal Code</b>	<b>Ren Energy-6</b>
<b>Principal Investigator email</b>	<b>Prof. Osama Ezzat Abdellatif – Dr. Mohamed Abdelrahman Osama.abdellatif@feng.bu.edu.eg</b>
<b>Research title</b>	<b>Modelling and Construction of Low Speed Small Scale Vertical Axis Wind Turbines.</b>
<b>Background</b>	<p>The goal of this project is to design a low cost vertical axis wind turbine specifically for low wind speed sites. as the Savonius rotor creates high torque and is self-starting even at low wind speeds, but is relatively low in efficiency rating. On a contrary The Darrius rotor is not a self-starting rotor, but has much higher efficiency than the Savonius rotor. So a combination of Darrius and Savonius rotors will be designed and tested for optimal performance in low wind speeds. The Savonius rotor is used to start the straight bladed Darrius rotor. The combination of rotors will increase the total power of the turbine in lower wind speeds.</p> 
<b>Research Area(s)</b>	<b>Electricity generation using renewable resources</b>
<b>Type</b>	<b>Experimental and Numerical simulation using CFD techniques.</b>
<b>Duration</b>	<b>24 months</b>
<b>Expected Outcomes</b>	<p><b>Estimate the output power and starting torque in case of Darrius turbine, Savonius turbine and the combination between them.</b></p> <p><b>The turbine performance improves in case of combination between Savonius and Darrius.</b></p> <p><b>The CFD simulation will indicates the effect of combination in terms of velocity and pressure distributions.</b></p>

<b>Faculty</b>	<b>Engineering- Shoubra</b>
<b>Proposal Code</b>	<b>Ren Energy-7</b>
<b>Principal Investigator email</b>	<b>Prof. Osama Ezzat Abdellatif – Eng. Ahamd Saeed Osama.abdellatif@feng.bu.edu.eg</b>
<b>search title</b>	<b>Algorithm and Experimental Techniques for Tracking of solar cell.</b>
<b>Background</b>	<p>Investigates the output power and therefore the efficiency of PV modules. A comparison between theoretical (Comsol Multiphysics) and experimental work results for fixed and tracking Photovoltaic systems are presented.</p> 
<b>Research Area(s)</b>	<b>A double axial sun-tracking system is designed where the movement of a photo-voltaic module is controlled to follow the Sun's radiation .The solar panel tracks the sun from east to west automatically for maximum intensity of solar irradiance ,and thus increase the power generation.</b>
<b>Type</b>	<b>Experimental and Numerical simulation using CFD techniques.</b>
<b>Duration</b>	<b>24 months</b>
<b>Expected Outcomes</b>	<b>A significant enhancement in the total electrical efficiency with acceptable increase in the output power.</b>

<b>Faculty</b>	<b>Engineering- Shoubra</b>
<b>Proposal Code</b>	<b>Ren Energy-8</b>
<b>Principal Investigator email</b>	<b>Prof. Osama Ezzat Abdellatif – Dr. Ismail El-Samary Osama.abdellatif@feng.bu.edu.eg</b>
<b>Research Title</b>	<b>Investigation for the Performance of A domestic Solar Water Heater</b>
<b>Background</b>	<p>An experimental investigation of the use of Nano-fluid to enhancement the heat transfers in the evacuated tube solar collector with different type of Nano-fluid and different concentration. In this study also the effect of various operating factors such as weather conditions, pregnancy, cooling air or steam and moisture conditions on the performance of evacuated tube water heating solar powered. Each of the temperature of the water out of the heater, as well as the amount of water and the thermal efficiency based on the analysis of each of the first law and the second law of thermodynamics as factors to measure performance was selected.</p> 
<b>Research Area(s)</b>	<b>Solar Energy</b>
<b>Type (Theoretical, Experimental)</b>	<b>Experimental</b>
<b>Duration</b>	<b>24 months</b>
<b>Expected Outcomes</b>	<b>The use of Nano-fluid enhancement the heat transfers so that it may be increase the efficiency of evacuated tube collector.</b>

<b>Faculty</b>	<b>Engineering- Shoubra</b>
<b>Proposal Code</b>	<b>Ren Energy-9</b>
<b>Principal Investigator email</b>	<b>Prof. Ghazy Mohamed Rateb Assassa</b> <b>dr.ghazyassassa@feng.bu.edu.eg</b>
<b>Research Title</b>	<b>Optimization of Solar Thermal Energy Heat Storage Using Phase Change Materials (PCM) and Nano-alumina</b>
<b>Background</b>	<p>Experiments are to be performed to evaluate the effects of varying concentrations of the Nano-alumina (<math>Al_2O_3</math>) on the thermal energy storage characteristics of NEPCMs. Preliminary experimental results suggest that 10 % weight concentration is more effective in enhancing both the heat conduction and thermal storage performance of paraffin.</p> <p>More experiments are needed to investigate important parameters involved</p>  <p>in the thermal solar storage optimization including geometric shapes of both the Nano-alumina particles and the paraffin wax container, extending the concentration range of Nano-alumina, etc.</p>
<b>Research Area(s)</b>	<b>Thermal Solar Energy Storage</b>
<b>Research Type</b>	<b>Experimental and Numerical</b>
<b>Duration</b>	<b>24 months</b>
<b>Expected Outcomes</b>	<b>Optimizing thermal solar energy storage and decreasing the charging time.</b>

<b>Faculty</b>	<b>Engineering- Shoubra</b>
<b>Proposal Code</b>	<b>Ren Energy-10</b>
<b>Principal Investigator email</b>	<b>Prof. Osama Ezzat Abdellatif</b> <b>Osama.abdellatif@feng.bu.edu.eg</b>
<b>Research Title</b>	<b>Comparison investigation for horizontal wind turbine of direct-drive and geared generator</b>
<b>Background</b>	<p>The objectives of this work are is to design a small wind turbine that is optimized for the constraints that come with residential use of a 0.75 kW generator for a direct-drive wind turbine and to compare the generator systems for pitch control and for active speed stall control.</p> <div style="display: flex; justify-content: space-around; align-items: center;">   </div>
<b>Research Area(s)</b>	<b>Power Generation</b>
<b>Research Type</b>	<b>Numerical and Experimental</b>
<b>Duration</b>	<b>24 Months</b>
<b>Expected Outcomes</b>	<b>Increasing of generated power due to using direct drive machine and increasing power coefficient</b>

<b>Faculty</b>	<b>Engineering- Shoubra</b>
<b>Proposal Code</b>	<b>Ren Energy-11</b>
<b>Principal Investigator email</b>	<b>Prof. Ghazy Mohamed Rateb Assassa dr.ghazyassassa@feng.bu.edu.eg</b>
<b>Research Title</b>	<b>Optimizing solar photovoltaic (PV) performance under varying dust precipitation and cleaning frequency policy.</b>
<b>Background</b>	<p>The installation of PV systems for optimum yield is primarily dictated by its geographic location (latitude and available solar insolation) and installation design (tilt, orientation and altitude) to maximize solar exposure. However, once these parameters have been addressed appropriately, there are other depending factors that arise in determining the system performance (efficiency and output). Dust is the lesser acknowledged factor that significantly influences the performance of the PV installations.</p> <p>Experiments are to be conducted to investigate the performance of PV collectors under varying dust precipitation and cleaning frequency policy. Available surface repulsing techniques will also be investigated to minimize dust precipitation on the PV surface.</p>  <p>The diagram shows a 3D perspective of a solar panel system. The solar panel is tilted and covered with brown, irregular shapes representing dust particles. A circuit is connected to the panel, including a voltmeter (V), an ammeter (I), and a resistor. Labels include 'Solar Panel', 'Dust Particles', 'Voltmeter', 'Ammeter', and 'Resistor'.</p>
<b>Research Area(s)</b>	<b>Solar Power Generation</b>
<b>Research Type</b>	<b>Numerical and Experimental</b>
<b>Duration</b>	<b>24 months</b>
<b>Expected Outcomes</b>	<b>Increasing the solar power generation by minimizing dust accumulation on PV surface</b>

***Investigation of Potential Research Areas  
For Cooperation  
Between Benha University (Egypt)  
and  
Huazhong Agricultural University (China)  
(Veterinary Medicine)  
December, 2016  
By  
Prof. Mohamed Abo Salem***

<b>Cooperation Between Benha University (Egypt) and Chinese Universities</b>	
<b>Potential Research Areas</b>	
<b>Faculty</b>	<b>Faculty of Veterinary Medicine</b>
<b>Proposal Code</b>	Veterinary -1
<b>Principal Investigator</b>	<b>Hadeel Samy El-qaliouby &amp; Eman Ahmad Sallam</b>
<b>email</b>	<b>Hadil.abbas@fvtm.bu.edu.eg      drhadeelsamy@gmail.com eman.salam@fvtm.bu.edu.eg      dr_emansallam87@yahoo.com</b>
<b>Research Title</b>	<b>Candidate genes and protein markers for fertility and milk Production in buffaloes.</b>
<b>Background</b>	<p>Infertility is one of the most important reasons for culling of dairy animal. Fertility is also one of the primary traits of reproduction in bulls. Decrease in fertility is a multifactorial condition and is very difficult to diagnose. Male infertility is a major problem for mammalian reproduction. The nature of sub-fertility due to the male is as complex as that of the female.</p> <p>Genetic evaluation of animal reproductive performance depends on molecular technology for identifying genes of reproductive efficiency and analysis of the polymorphism of these marker genes whose products are key enzymes in the metabolic pathways of important physiological processes and are related to phenotypes. Some studies have shown that a significant percentage of reproductive failure is attributable to semen quality. Therefore, reproduction management based on artificial insemination (AI) is important for the assessment of the fertility level of sires. With the development of molecular biological techniques, the candidate gene method might offer the specific markers to predict sperm quality traits in bulls. Functions of sperm that may be affected by seminal plasma proteins include capacitation, the acrosome reaction, motility, DNA integrity and interaction with the oocyte. Mammalian seminal plasma is a complex mixture of secretions originated from testis, epididymis and male accessory sex glands which contains a variety of proteins that modulate the fertilizing ability of sperm. A number of seminal plasma proteins have been investigated which act as molecular markers of fertility in different species.</p>
<b>Research Area(s)</b>	Animal and poultry production
<b>Type (theoretical / Experimental)</b>	<b>Experimental</b>
<b>Duration</b>	24 Months
	► We anticipate that completion of this proposed project will provide a foundation to link the genomics of candidate genes to the mechanisms

<p><b>Expected Outcomes</b></p>	<p>involved in buffalo reproduction, milk production and semen production and its quality in bulls.</p> <ul style="list-style-type: none"><li>▶ This will definitely solve reproductive problems in buffaloes.</li><li>▶ Enable us to do an accurate and earlier selection for the highly superior animals in the population on a genotype basis</li><li>▶ this can improve reproduction and sequentially increase milk production of such animals and solve food shortage problem in Egypt that will have impact on national income</li><li>▶ comprehensive approach to identify proteins of accessory sex gland fluid is crucial to understanding the potential mechanisms by which epididymal sperm function is altered after ejaculation. Thus, we presently report a proteomic analysis of the accessory sex gland fluid from mature bulls and discuss how known attributes of the proteins may influence the male gamete and fertilization.</li><li>▶ Progress has been made in developing reliable indicators of ejaculate quality that allow exclusion of low quality ejaculates for use in artificial insemination (AI).</li></ul>
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<b>Cooperation Between Benha University (Egypt) and Chinese Universities</b>	
<b>Potential Research Areas</b>	
<b>Faculty</b>	Veterinary Medicine
<b>Proposal Code</b>	Veterinary -2
<b>Principal Investigator</b>	<b>Dr. Mohamed M. M. Kandiel</b> Ass. Prof. at Theriogenology department Faculty of Veterinary Medicine Benha University
<b>email</b>	<a href="mailto:Mohamed.kandil@fvtm.bu.edu.eg">Mohamed.kandil@fvtm.bu.edu.eg</a> <a href="mailto:kandiel75@hotmail.com">kandiel75@hotmail.com</a> <a href="mailto:mohamedkandiel@yahoo.com">mohamedkandiel@yahoo.com</a>
<b>Research Title</b>	<b>"The prognostic value of Protamine-1 protein and gene transcript as a sperm specific biomarker for fertilizing capacity of buffalo bulls"</b>
<b>Background</b>	<p>Subfertility represents a syndrome of great impact of animal reproductive potential and causes a lot of economic losses for animal breeder. Identifying a reliable marker for predicting the fertility of semen is of great importance for the success of assisted reproductive techniques such as artificial insemination, embryo transfer and in vitro fertilization.</p> <p>Over the past decade, an explosive development of in vitro assays was experienced to determine sperm intactness and measurement of sperm function that helped andrological diagnosis and the optimization of semen processing methods. The currently used spermogram of ejaculated spermatozoa focuses (besides the aspects of pH and volume of the ejaculate) solely on the number of spermatozoa and its motility including sometimes its kinematic patterns (<a href="#">Rodríguez-Martínez 2013</a>). While these tests are frequently used to evaluate male fertility, their clinical value is debated (Lewis, 2007).</p> <p>Sperm DNA is packaged very tightly to protect the DNA during the transit that occurs before fertilization. The primary levels of the sperm chromatin structure can be divided into three main categories: the large majority of DNA is packaged by protamines, a smaller amount (2–15%) retains histone-bound chromatin and the DNA is attached to the nuclear matrix at roughly 50 kb intervals (<a href="#">Steven Ward 2010</a>).</p> <p>The protamines are a diverse family of small arginine-rich proteins that are synthesized in the late-stage spermatids of many animals and plants and bind to DNA, condensing the spermatid genome into a genetically inactive state (<a href="#">Balhorn 2007</a>). Protamines, the major nuclear sperm proteins, protect the genetic message delivered by the spermatozoa and are involved in the processes maintaining the integrity and repair of</p>

	<p>DNA. There is also evidence that altered levels of protamines may result in an increased susceptibility to injury in the spermatozoanDNA causing infertility or poor outcomes in assisted reproduction(<a href="#">Oliva 2006</a>).</p> <p>Vertebrates have from one to 15 protamine genes per haploid genome, which are clustered together on the same chromosome. The two protamines found in mammals, P1 and P2, are the most widely studied. P1 packages sperm DNA in all mammals, whereas protamine P2 is present only in the sperm of primates, many rodents and a subset of other placental mammals (<a href="#">Balhorn 2007</a>).</p> <p>Field fertility scores of the bulls were negatively correlated with the percentage of spermatozoa displaying reduced protamination and fragmented DNA (<a href="#">Dogan et al. 2015</a>).The protamine-1/2 mRNA ratio was strongly related to male sperm concentration, progressive motility, total and DNA fragmentation index (<a href="#">Ni et al. 2014</a>). The DNA fragmentation index (DFI), determined by SCSA, was positively correlated with the percentage of spermatozoa that showed low protamine content (<a href="#">Fortes et al. 2014</a>). Larger scrotal circumference contributes to higher sperm protamine content and lower content of sperm DNA damage (<a href="#">Fortes et al. 2014</a>).</p>
<p><b>Research Area(s)</b></p>	<p><b>Reproductive Biotechnology and Artificial Insemination</b></p>
<p><b>Type (theoretical / Experimental)</b></p>	<p><b>Experimental:</b></p> <p><b>Experiment 1:</b></p> <ul style="list-style-type: none"> <li>• <b>Aim:</b> Assessment and classification of semen from different buffalo bulls using routine spermogram as well as advanced techniques as electrophoretic analysis and CASA.</li> <li>• <b>Brief description:</b></li> <li>• Semen will be obtained from genetically different buffalo bulls and examine traditionally for motility, livability and abnormalities in order to classify high and low quality semen.</li> </ul> <p><b>Experiment 2:</b></p> <ul style="list-style-type: none"> <li>• <b>Aim:</b> Determination of the sperm chromatin content of different buffalo bulls spermatozoa by evaluating DNA fragmentation and chromatin maturity / protamination.</li> </ul> <p><b>Brief description:</b></p> <ul style="list-style-type: none"> <li>• Classified semen samples into low and high quality grades will be examined for DNA fragmentation and Chromatin.</li> <li>• The chromatin maturity will be examined by using Toluidine blue stain while the DNA fragmentation will be assessed by Comet assay.</li> </ul>

	<p><b>Experiment 3:</b></p> <ul style="list-style-type: none"> <li>• <b>Aim:</b> Determination of PRM1 protein status</li> <li>• <b>Brief description:</b></li> </ul> <p><b>a) The relative expression of PRM1:</b></p> <ul style="list-style-type: none"> <li>• It will be determined by real time RT-PCR, using bovine specific primers and <math>\beta</math>-actin as endogenous control as described by <b>Hecht et al., (2010)</b>.</li> </ul> <p><b>b) Protamine deficiency:</b></p> <ul style="list-style-type: none"> <li>• It will be assessed by the Chromomycine A3 (CMA3) staining method described previously (<b>Salehi et al., 2013</b>).</li> </ul> <p><b>Experiment 4:</b></p> <ul style="list-style-type: none"> <li>• <b>Aim:</b> Evaluation of Protamine-1 gene transcript by in spermatozoa, oocytes, zygotes, two and four cell embryos</li> <li>• <b>Brief description:</b></li> <li>• mRNA will be extracted and the purity of extracted RNA will be assessed by measuring the optical density OD).</li> </ul> <p>The RNA will be reverse transcribed into first strand complementary DNA (cDNA) using Oligo-dT primers and purified using DNA purification kit .</p>									
<p><b>Duration</b></p>	<p><b>24 Months</b></p> <table border="1"> <thead> <tr> <th data-bbox="320 1317 480 1417"></th> <th data-bbox="480 1317 1058 1417">Description</th> <th data-bbox="1058 1317 1366 1417">Start Date to Completion Date</th> </tr> </thead> <tbody> <tr> <td data-bbox="320 1417 480 1641"> <p><b>Phase 1</b></p> </td> <td data-bbox="480 1417 1058 1641"> <ul style="list-style-type: none"> <li>- Adjusting the equipment, materials and lab for work.</li> <li>- Preparing the buffalo bulls for work</li> </ul> </td> <td data-bbox="1058 1417 1366 1641"> <p>(4 months)</p> <p>From: 01/07/2017 to: 01/12/2017</p> </td> </tr> <tr> <td data-bbox="320 1641 480 2009"> <p><b>Phase 2</b></p> </td> <td data-bbox="480 1641 1058 2009"> <p>Semen collection from different buffalo bulls and its evaluation using spermiogram, CASA, DNA fragmentation and chromatin maturity / protamination</p> </td> <td data-bbox="1058 1641 1366 2009"> <p>(Total 10 months)</p> <p>-From: 01/12/2017 to: 01/07/2018</p> <p>- 2 months for Data collection and publishing</p> </td> </tr> </tbody> </table>		Description	Start Date to Completion Date	<p><b>Phase 1</b></p>	<ul style="list-style-type: none"> <li>- Adjusting the equipment, materials and lab for work.</li> <li>- Preparing the buffalo bulls for work</li> </ul>	<p>(4 months)</p> <p>From: 01/07/2017 to: 01/12/2017</p>	<p><b>Phase 2</b></p>	<p>Semen collection from different buffalo bulls and its evaluation using spermiogram, CASA, DNA fragmentation and chromatin maturity / protamination</p>	<p>(Total 10 months)</p> <p>-From: 01/12/2017 to: 01/07/2018</p> <p>- 2 months for Data collection and publishing</p>
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	<p><b>Phase 3</b></p>	<p>- Determination of PRM1 protein status in the sperm by RT-PCR.</p> <p>-Evaluation of Protamine-1 gene transcript in sperm, oocyte, zygote, 2 and 4 cell embryo by RT-PCR.</p>	<p>(Total 10 months)</p> <p>-From: 01/09/2018 to: 01/05/2019</p> <p>- 2 months for Data collection and publishing</p>
<p><b>Expected Outcomes</b></p>	<p><b>Expected Outputs (Results)</b></p> <ul style="list-style-type: none"> <li>a- Obtain a reasonable relation between the protamine 1 and 2 content and the fertility of semen, which validates the predictability of this biomarker and semen quality.</li> <li>b- This study will provide a novel information on the presence of mRNAs in mature male and female gametes, as well as in early embryos of a commonly used large animal model and in a non-human primate model</li> <li>c- It will contribute to our understanding of the possible role of spermatozoal transcripts during fertilization and early embryo development in general and may also allow extrapolations to human fertilization and embryonic development.</li> </ul> <p><b>Expected Outcomes (significance)</b></p> <p>Increased the accuracy of semen quality prediction through simple testing of protamine 1 content in seminal plasma of buffalo bulls</p>		

<b>Cooperation Between Benha University (Egypt) and Chinese Universities</b>	
<b>Potential Research Areas</b>	
<b>Faculty</b>	Faculty of Veterinary medicine
<b>Proposal Code</b>	Veterinary -3
<b>Principal Investigator</b>	<b>Basant Mohamed Nagieb Skafik</b>
<b>email</b>	<b>basant.shafeek@fvtm.bu.edu.eg</b> <b>basant.shafeek@gmail.com</b>
<b>Research Title</b>	<b>Genetic Evaluation of Productive and Reproductive traits of Fayoumi and Rhode Island Red Crossing.</b>
<b>Background</b>	<ul style="list-style-type: none"> <li>• In Egypt, one of the important protein resources are poultry protein. Most of the Egyptian consumers prefer eggs from local native strains but the productivity of the native is genetically low so crossing local breeds with foreign breeds leads to increase growth rate and better egg production strains.</li> <li>• Crossbreeding is one of the tools for exploiting genetic variation. The main purpose of crossing in chicken is to produce superior crosses and to combine different characteristics.</li> <li>• A number of breeds of poultry have been developed in the world to obtain maximum eggs and meat production. Some of these breeds such as Leghorn, Plymouth Rock, Fayoumi, New Hampshire and Rhode Island Red.</li> <li>• Fayoumi layers are known to produce about 250 eggs annually on low nutrition supply also has strong immunity against common diseases.</li> <li>• Research carried out for the production of crossbred (Sonali) from RIR and Fayoumi chickens reported increased egg production.</li> </ul>
<b>Research Area(s)</b>	Animal and poultry production
<b>Type (theoretical / Experimental)</b>	Experimental
<b>Duration</b>	24 Months
<b>Expected Outcomes</b>	<ol style="list-style-type: none"> <li>1. Increase the poultry protein resources (meat and eggs) in Egypt.</li> <li>2. Improved productive traits as body weights and egg weight.</li> <li>3. Producing crosses characterized by high fertility and hatchability%.</li> </ol>

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|--|---|
|  | <p>4. Increase the carcass to live weight relationship.</p> <p>5. The knowledge: if there is genetic polymorphism among different genotypes or not.</p> |
|--|---|

<b>Cooperation Between Benha University (Egypt) and Chinese Universities</b>	
<b>Potential Research Areas</b>	
<b>Faculty</b>	Faculty of Veterinary Medicine
<b>Proposal Code</b>	Veterinary -4
<b>Principal Investigator</b>	Eman Abd-Allah Ibrahim Manaa Lecturer Animal and Poultry Production Department OF Animal Wealth Development Faculty of Veterinary Medicine, Benha University.
<b>email</b>	Dr.emanabdallah@yahoo.com eman.manaa@fvtm.bu.edu.eg
<b>Research Title</b>	Genetic Improvement for Japanese Quail Using Molecular Marker Tools
<b>Background</b>	<p>High demand for meat in developing countries offers a strong challenge. Poultry are considered as an important producer in this respect Quail are an economically important poultry species and provide an alternative to the more commonly used chicken. They require less space, low initial investment and short generation interval.</p> <p>The small size of quail is a limited factor in many countries, because there is not a general consumption culture according to such products, so increasing the size of quail and their products is a necessity for such countries.</p>
<b>Research Area(s)</b>	Animal and Poultry Production
<b>Type (theoretical / Experimental)</b>	Experimental
<b>Duration</b>	24 Months
<b>Expected Outcomes</b>	<ol style="list-style-type: none"> <li>1) <b>Diffusing the improved Japanese quail resources to the commercial farms.</b></li> <li>2) The farm profitability will be increased by using genetically improved birds.</li> <li>3) <b>The Japanese quail enterprises contribute in solving the unemployment problem by offering unconventional work opportunities.</b></li> <li>4) Publishing papers in international journals and in the World Poultry Congress, this will improve the world ranking of Benha University.</li> </ol>

<b>Cooperation Between Benha University (Egypt) and Chinese Universities Potential Research Areas</b>	
<b>Faculty</b>	Veterinary medicine
<b>Proposal Code</b>	Veterinary-5
<b>Principal Investigator email</b>	<b>Liza Sabry Mohammed Ali</b> Assistant professor of Veterinary Economics & Farm Management Department of Animal Wealth Development Faculty of Veterinary Medicine, Benha University.
<b>Research Title</b>	<b>Tomato and Guava waste products as an unusual feed stuff for chicks.</b>
<b>Background</b>	<ul style="list-style-type: none"> <li>• Costs of production and returns are the two major concerns in poultry sector. The problems of how much the bird costs and how much it gains are becoming the most important formula in poultry economics.</li> <li>• Therefore, recent studies focused on the use of Agriculture and food processing wastes in animals and poultry feeding</li> <li>• As a consequence, there can be a reduction in the use of traditional feed ingredients such as maize and soybeans that increased in their price and can also be consumed by humans.</li> <li>• Food processing is the second largest industry in Egypt; it yields a huge amount of by-products which need to be disposed off .</li> <li>• The average annual production of tomato in Egypt is 7.6 million tons by the year 2006 (FAO, 2008).</li> <li>• Guava waste (GW) constitutes 4% to 12% of the total mass of the fruit</li> <li>• The inclusion of tomato and guava waste in the feed improve performance and carcass yield similar to that obtained with the feed based on corn and soybean meal.</li> </ul>
<b>Research Area(s)</b>	Veterinary Economics & Farm Management
<b>Type (theoretical / Experimental)</b>	Experimental
<b>Duration</b>	24 Months
<b>Expected Outcomes</b>	<ul style="list-style-type: none"> <li>• Achievement of economic and productive efficiency of poultry farms by maximization of production and profit with low cost combination bases. Depending on decreasing the amount of traditional feed ingredients such as maize and soybeans that increase continuously in their prices nowadays</li> <li>• using tomato and guava wastes as a substitution of these ingredient considered more economically .</li> <li>• Decrease Economic Obstacles which Oppose Poultry Industry Performance.</li> </ul>

<b>Cooperation Between Benha University (Egypt) and Chinese Universities Potential Research Areas</b>	
<b>Faculty</b>	Veterinary Medicine
<b>Proposal Code</b>	Veterinary -6
<b>Principal Investigator</b>	Prof. Dr. Amany Abbass
<b>email</b>	<a href="mailto:amanyabbass3@fvtm.bu.edu.eg">amanyabbass3@fvtm.bu.edu.eg</a>
<b>Research Title</b>	<b>Probiotics and their uses in fish farming in Egypt and China</b>
<b>Background</b>	<p>Aquaculture is considered to be the fastest growing food-producing sector in the world, with an average annual growth rate of 8.9 %.</p> <p>Aquaculture subjected to hits of disease conditions caused by viruses, bacteria, fungi, parasites which severely interfere with the net production of the cultured species. The Egyptian production of tilapia, where it dropped to the third world tilapia producer (according to FAO statics, 2015).</p> <p>Antibiotics and chemotherapeutics application in aquaculture for control of diseases received strict regulations due to its negative impacts as; development of antibiotic resistant bacteria, suppression of host's immune system, destruction of the microbial population in the aquatic environment and bioaccumulation. Application of vaccine is limited, expensive and pathogen-specific.</p> <p>In 2015, the Egyptian production of tilapia dropped to the third world tilapia producer. Recently, bacterial pathogens as <i>Aeromonas hydrophila</i> and <i>streptococcus</i> and <i>vibrio species</i> causing considerable economic losses in Egyptian fish farms. Control of such diseases using antimicrobials showed limited success. Therefore, alternative control/ preventive strategies are needed. This study designed to select, identify and characterise probiotic bacteria as a disease control approach in fish farms in Egypt. Molecular understanding of immunomodulation by probiotic bacteria and their cellular components will be under investigation. Effect of probiotic bacteria and their cellular components on vaccine specific immune response will be determined.</p>
<b>Research Area(s)</b>	Fish and aquaculture
<b>Type (theoretical / Experimental)</b>	Applied Experimental
<b>Duration</b>	24 months
<b>Expected Outcomes</b>	Novel probiotic bacteria to be used for commercial scale. Exciting new control approaches through the using probiotic bacteria and their cellular components as novel adjuvant to enhance vaccine efficacy.

<b>Cooperation Between Benha University (Egypt) and Chinese Universities Potential Research Areas</b>	
<b>Faculty</b>	Veterinary Medicine
<b>Proposal Code</b>	Veterinary -7
<b>Principal Investigator email</b>	Prof. Dr. Hanem F. Khater <a href="mailto:hanem.salem@fvtm.bu.edu.eg">hanem.salem@fvtm.bu.edu.eg</a> Dr/Aya El Sayed Shaban Azam Assistant professor Hygiene, animal behavior and management department Edu. Mail: <a href="mailto:aya.azam@fvtm.bu.edu.eg">aya.azam@fvtm.bu.edu.eg</a>
<b>Research Title</b>	<b>Sustainable management of livestock ectoparasites with nano and micro-encapsulated pesticides</b>
<b>Background</b>	
<b>Research Area(s)</b>	Nanotechnology - Parasite control
<b>Type (theoretical / Experimental)</b>	Applied Experimental
<b>Duration</b>	24 months
<b>Expected Outcomes</b>	Novel probiotic bacteria to be used for commercial scale. Exciting new control approaches through the using probiotic bacteria and their cellular components as novel adjuvant to enhance vaccine efficacy.

<b>Cooperation Between Benha University (Egypt) and Chinese Universities Potential Research Areas</b>	
<b>Faculty</b>	Veterinary Medicine
<b>Proposal Code</b>	Veterinary -8
<b>Principal Investigator</b>	Dr. Mahmoud Abdelghaffar Emam
<b>email</b>	mahmoud.hussein@fvvm.bu.edu.eg
<b>Research Title</b>	<b>Impact of vitamin D (Calcitriol) on prostate cancer: In vitro and in vivo studies</b>
<b>Background</b>	<p>Prostate cancer is the most common cancer in men all-over the world. Dog is the only known non-human species that spontaneously develops benign prostatic hyperplasia (BPH) and prostate cancer with advancing age.</p> <p>Canine prostatic neoplasms generally are malignant, and benign forms have rarely been reported. Because of the late diagnosis and advanced status of canine prostatic neoplasia, treatment of this disease is generally unsuccessful with commonly used cytotoxic drugs.</p> <p>During the last decades, there have been many studies reporting a link between vitamin D (calcitriol) and cancer demonstrating an association between cancers and vitamin D deficiency.</p> <p>Recently, vitamin D receptors are determined and localized in many different cancers, including colon cancer, leukemia, and breast cancer.</p> <p>Vitamin D and its synthetic analogs have been shown to exert anti-tumor effects in many human cancer cells. The mechanisms by which vitamin D and its analogs contribute to the inhibitory mechanisms on tumor growth are still not well established.</p>
<b>Research Area(s)</b>	Cancer
<b>Type (theoretical / Experimental)</b>	Applied Experimental
<b>Duration</b>	24 months
<b>Expected Outcomes</b>	The present study will aim to investigate the impact of vitamin D (calcitriol) on human and canine prostate cancer cells (PCC) as an in vitro study, and on prostate cancer in dogs as an in vivo study. We will try to discover the mechanism by which calcitriol treat with prostate cancer (in vitro and in vivo) through flow cytometer, western blot and immunohistochemistry.

<b>Cooperation Between Benha University (Egypt) and Chinese Universities Potential Research Areas</b>	
<b>Faculty</b>	Faculty of Veterinary Medicine
<b>Proposal Code</b>	Veterinary-9
<b>Principal Investigator email</b>	<b>Dr. Ayman Samir Farid Abdel-Aleem</b> Associate Professor, Clinical Pathology Department, Faculty of Veterinary Medicine, Benha University, Egypt <a href="mailto:ayman.samir@fvtm.bu.edu.eg">ayman.samir@fvtm.bu.edu.eg</a> or <a href="mailto:aymansf@yahoo.com">aymansf@yahoo.com</a>
<b>Research Title</b>	<b>“Intestinal and Hepatic T-Lymphocyte Trafficking and Activation during Enteric Parasitic Infection”</b>
<b>Background</b>	In response to infection, tissue damage, or acute inflammation, the host undergoes a series of biochemical and physiological changes termed the acute-phase response. This response is an innate immune reaction, which plays a critical role in limiting tissue injury. A key component of the acute-phase response is altered hepatic synthesis of a wide array of proteins involved in coagulation, lipid metabolism, and the complement systems. T-cells are powerful and flexible regulators of the function of many immune and non-immune cells, besides their direct defence capabilities. The presence or absence of proinflammatory versus regulatory subsets has major effects on the course and outcome of inflammatory reactions, due to the distinct cytokines secreted. It is therefore of significant interest to know how T-cells become attracted to sites of inflammation. Thus, understanding the molecular and cellular mechanisms underlying T-cells traffic pathways within intestinal-hepatic axis is crucial to the treatment and cure of hepatic diseases that the applicant had previously discovered during enteric parasitic infections
<b>Research Area(s)</b>	Immunity, T-lymphocyte, Liver Functions, Hepatitis, Enteritis
<b>Type (theoretical / Experimental)</b>	Experimental
<b>Duration</b>	24 Months
<b>Expected Outcomes</b>	<ul style="list-style-type: none"> <li>- This work will elucidate and bring to the light the molecular and cellular mechanisms underlying T cells traffic pathways within hepatic and intestinal axis during enteric parasitic infection in experimental animals.</li> <li>- Finding the mechanistic relation between enteritis and hepatitis during enteric parasite infections.</li> <li>- Exploring the consequences of hepatic inflammation during enteric nematode infection regarding arteriosclerosis process.</li> </ul>

<b>Cooperation Between Benha University (Egypt) and Chinese Universities Potential Research Areas</b>	
<b>Faculty</b>	Veterinary Medicine
<b>Proposal Code</b>	Veterinary -10
<b>Principal Investigator</b>	Prof Mohamed Ghanem
<b>email</b>	<a href="mailto:Mohamed.ghanem@fvtm.bu.edu.eg">Mohamed.ghanem@fvtm.bu.edu.eg</a>
<b>Research Title</b>	The role of mobile clinic in improving the community, educational and applied research quality at the faculty of Veterinary medicine, Benha University
<b>Background</b>	<p>-The faculty of Veterinary Medicine is located in the rural area in Qalyubia governorate, Egypt. It serves to deal with and treat animals in all villages and countryside in the nearby. However, more than 120 villages are located far away from the faculty and have not access to the veterinary service provided by the faculty.</p> <p>-In this proposal, it is planned to prepare a mobile clinic to provide all kinds of veterinary services to animals in the far farms and villages. The mobile clinic will include a car instrumented with different tools of diagnosis and small pharmacy for treatment of clinical cases that could not reach the faculty.</p> <p>-Bibliographic data of all clinical cases of different animals will be collected to outline a map for various diseases, thus helping track the disease nuclei and consequently plan the control regulations.</p> <p>-A well-trained team will be ready to deal with all kind of clinical diseases, specially the emergency interference and critical care control.</p> <p>-since students are currently lacking the practical and field application according to the regular feedback from students, the project will enhance the practical and professional skills of students in the veterinary practice by hands-on training through the direct contact with their professor</p>
<b>Research Area(s)</b>	Clinical diagnosis and control of animal diseases
<b>Type (theoretical / Experimental)</b>	Applied experimental
<b>Duration</b>	24 Months
<b>Expected Outcomes</b>	<ul style="list-style-type: none"> <li>- A Mobile clinic provided with different diagnostic and therapeutic tools</li> <li>- A map for different diseases affecting animals in Qalyubia governorate community</li> <li>- A mobile small research lab to serve for the laboratory diagnosis of Veterinary diseases</li> <li>- Trained staff on the veterinary ambulance and emergency interference</li> <li>- Two research papers in impacted journals including the diagnosis and treatment of field clinical cases in veterinary practice</li> <li>- Disease control system in Qalubia governorate</li> <li>- Sustainable community service to poor and low-income owners</li> <li>- Educational source and practicing module for enhancing the professional skills of Veterinary Medical students</li> </ul>