



Newsletter issued by
the Media and Communications Department
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United Arab Emirates University
Council holds second meeting
for the academic year 2016-
2017..



UAEU Chancellor His Excellency Dr Ali Rashid Al Noaimi presided over the second meeting of the UAEU Council in Dubai, at the same time as the World Government Summit. During the meeting, members discussed enhancing the pioneering role of the UAEU and promoting the values of excellency towards a path of continuous development. They agreed to organize a plan to promote the image of the university and attract more male students in particular. The plan is to re-establish and revise programs and academic majors and specializations to achieve the university's vision of happiness and excellency, which complies with the National Vision of Happiness, and agrees on common world standards.

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Editorial



The College Of Education At The United Arab Emirates University: Organized An International Conference With The Participation Of The World Educational Leaders And Experts..

Under the patronage of His Excellency Dr. Ali Rashid Al Noaimi, Chancellor of UAEU, and in cooperation with the organization of The Hamdan Bin Rashid Al Maktoum award for Distinguished Academic Performance, Dr. Ghaleb Ali Al Hadrami, Deputy Vice Chancellor for Academic Affairs & Provost inaugurated the international conference of the College of Education. The conference was held in Al Ain, at the building of the College of Education inside the campus of the university, in the presence of his Excellency Dr. Jamal Al Muhairi, the Undersecretary of the Ministry of Education and Youth and General Secretary of the Hamdan Award for Distinguished Academic Performance, with the participation of the representatives of The Abu Dhabi Education Council, and the Raydan Academy, in addition to the experts and decision makers in the field of education coming from the countries of the Middle East, the North of Africa, the United States of America, Scandinavian countries, and many professors and teachers in the public school sector, as well as many officials, administrative seniors, heads and academic leaders.

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College of Food and Agriculture Week 2017..



Under the patronage of United Arab Emirates University Vice Chancellor Professor Mohamed Albaili, the College of Food and Agriculture (CFA) organized a Week of Food and Agriculture 2017, as part of the university's Innovation for Happiness initiative.

The event opened in the presence of CFA Dean Professor Bhanu Chowdhary, UAEU teachers, staff and students,

schoolchildren, and representatives from agricultural and medical institutions, as well as food and grocery stalls.

Professor Chowdhary said that the annual festival aims to enhance educational and cultural awareness in the fields of food and agriculture, and is considered a good opportunity for students to promote their research projects,

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UAEU students: Highlight the need for standardization of symbols used in maps across the UAE..

Sultan Al Mansouri, Abdullah Al Shekaili, Abdullah Al Zubaidi, and Mohammed Maali represented the UAEU at the 2nd Asia Pacific Conference on Contemporary Research (APCCR) in Kuala Lumpur, Malaysia, in November last year, to present their 2016 Summer Undergraduate Research Experience (SURE) project. Their research, Tourist Maps' Symbology in the United Arab Emirates (UAE), was conducted under the supervision



of CHSS Geography and Urban Planning Department Assistant Dean for Student Affairs and Assistant Professor of Cartography, Dr Naeema Al Hosani, and Geography and Urban Planning Department Assistant Professor Dr Abul Salam Abdul Mannan. Their paper shone a light on the need for the standardization of map symbology in the UAE.

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UAEU Engineering Students: Scoop 3rd Place at the International Conference on Electronic Devices, Systems and Applications ..

A group of electrical engineering students from United Arab Emirates University (UAEU) achieved 3rd place in the 5th International Conference on Electronic Devices, Systems and Application (ICDESA) which was held at the American University of Ras Al Khaima recently. The conference was sponsored by the Global Institute of Electrical and Electronics Engineers (IEEE).



The team of UAEU students: Musab Asad, Sultan Al Neyadi, Othman Al Aidaros, and Mahmoud Khalil, under the supervision of Department of Electrical Engineering Associate Professor Mousa Hussein, competed with undergraduate and postgraduate students from around the world.

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Sheikh Khalifa bin Zayed: Giving As Generously As He Has Done

Author: Abdul Rahman Tahboub

Publisher: Dubai, Rashid Pediatric Therapy Center

Publication Year: 2011

No. of Pages: 144

The first chapter, Khalifa, The Leader, Father, and Human Being, describes the place where the Wise Leader President His Highness Sheikh Khalifa bin Zayed Al Nahyan was born and raised, and the traditional values he inherited from his father, His Highness the late Sheikh Zayed bin Sultan Al Nahyan, may Allah bless his life hereafter with Jannah and bestow him with mercy and eternal peace, and may Allah reward him for his assistance to the poor and needy.

Chapter one goes on to tells us about the education received by Sheikh Zayed's eldest son, about how it shaped his life, his personality and his character, about the hobbies and activities he was passionate about, the positions he held and acceded, and the titles he earned until the date of his ruling and presidency.

It describes his efforts to enhance, unify and fortify the armed forces, and discusses his role in the founding and developing of the United Arab Emirates, the date of his nomination and presidency, as well as his influence, his role, his impact, and the humanitarian charitable deeds carried out under him.

The second chapter, Readings and Diving in the Ocean of Khalifa bin Zayed Al Nahyan's Philosophy, is the analysis and interpretation of dialogues and interviews conducted with His Highness by local and international media. It focuses on the aspirations and visions of Sheikh Khalifa concerning regional cases and issues.

The third chapter is Khalifa bin Zayed Al Nahyan, Personality of the Year 2011-2010, and the fourth chapter is dedicated to the subject of the Dubai International Holy Quran Award (DIHQA) which named His Highness Khalifa bin Zayed Al Nahyan, the President of the United Arab Emirates, the Islamic Personality of the Year 2011-2010. Upon the winning of the award, this book was published to record the memorable ceremony.



Achievement - success - good..

UAEU Scientists Develops High-Tech 'Avatar' Robot

to Bring a New Dimension to Robotics..



Scientists at United Arab Emirates University (UAEU) are creating a hi-tech robot designed to mimic human movements – resembling something from epic sci-fi movie Avatar. The human-like robot – which has the potential to become a tool for bomb disposal but whose use could also be extended into other areas – is designed to give its operator the same control and sensations as if they were using their own limbs, allowing them to feel whatever it touches. The first stage of the project has been developed, designed and built by Dr Fady Alnajjar, assistant professor in the Department of Information Technology at UAEU, and his team of specialists, with the United Arab Emirates Air Force providing Dh55,000 funding for the initial stages of the self-controlled, avatar robot's creation.

In the movie Avatar, remotely-controlled human bodies are used to interact with the inhabitants of a distant moon. For all the futurism of the film, the basic premise of this form of robot control is closer than you might think. And as Dr Alnajjar explains, the project he is leading could bring a new dimension to robotics because of its advantage over regular robots, which are remote-controlled and have limitations. It is intended to give its user the ability to feel they are touching or holding an object, without actually being there.

"The only way to sense a situation at present through using a robot is through vision – there is no sensory or tactile feedback from the environment," he said. "Also, the user will only be controlling a robot's hand using a remote-controlled tool, but that is not like using an arm – it doesn't allow the same level of freedom, such

as how far you need to open a hand and hold a grasp.

"When we control our own arm, we don't have to think of this type of thing; we don't have to consider how much freedom we need or how far to open our fingers to hold a cup or open and close a door. Our brains automatically control this."

The UAEU project aims to, as Dr Alnajjar says, allow the person in control to simply act naturally in order to operate the robot. "We are building sensors which the controller can wear, and then all they need to do is move as if they actually are the robot," he outlined.

"They don't need to think about how they should lean to use the controller – they just move normally, and the robot mimics that motion. A human will have more control if it feels like they are actually using their own arm."

Dr Alnajjar and his team of four students have worked for more than a month to construct the first stage of the robot – two human-controlled arms working via highly sophisticated sensors and modeled on the arm of a person in their mid-30s – in order to have it ready for showcasing at IDEX, the biennial arms and defence technology sales exhibition held at Abu Dhabi National Exhibition Centre in February.

"We cooperated with two companies as the arms are mostly constructed with three-dimensional parts, and we needed external help with 3D printers," he explained. "Even one finger takes a day to print."

"We've so far built a left and a right arm, and we did this in different ways because we still need to discover how they can handle the kind of situation

they would be used for. One of the arms has motors designed for heavy work, and one is designed for more accurate duties, such as separating two wires from each other.

"Once we show our work to experts such as the police, who deal with the kind of situations this robot may be used for, and they make suggestions to us, we will see which one we continue to build."

At present, the robot has been developed using wires about two metres long, which are connected to the gloves used for human control. Ultimately, however, the goal is to use wi-fi or wireless technology to allow the robot to be controlled from up to 15m away without any physical connection. The team also plans to incorporate technology that allows the robot's head – through a -360degree camera – and upper limbs to be controlled.

"We are now looking to prove the concept that such a type of robot will give its user more freedom to control at less cost," said Dr Alnajjar.

"At the moment, its functionality is at around 60-50 per cent. It now needs some fine-tuning in the field, and there is the potential for it to be customized to meet the needs of a particular client. The benefit of 3D-printed products is that you can customize on request, as the technology is very sophisticated and very cost-effective – it is just a case of knowing how best to utilize it."

"The one key drawback is that the robot cannot carry really heavy objects, such as those made of iron. But we are not really targeting this as its use. With its potential to be used in bomb disposal, accuracy is the key requirement, and accuracy is what we are aiming for."

UAEU Researchers Find a Way to Use Microalgae for Alternative Medicine

A scientific research group affiliated to the UAEU Chemical and Petroleum Engineering Department and the Faculty of Biological Sciences at ASIC University in the UK has succeeded in developing a mechanism to extract proteins and colorful substances from microalgae used in the manufacture of medicine. The extracted protein is used in the non-traditional treatment of diseases through an enzymatic reaction or procedure, which has paved the way for the manufacture of this innovative type of medicine.

In an interview with Chemical and Petroleum Engineering Department researcher, Professor Sulaiman Al Zuhair, he explained and clarified that the manufacture of the medicine around the world is based on scientific research empowered by medicine manufacturing companies who continuously try to invent and produce new kinds of medicine that will be more effective than existing medicines in treating certain diseases, and that there is currently an intensive focus on extracting material from natural sources and implementing it as an alternative form of medicine to replace chemical medicine, so helping to avoid any side effects that may have harmful consequences to human health.

Why did you choose to study microalgae?
Microalgae are known for being a monacellular organism, that is to say they consist of a single cell. They perform photosynthesis and regulate the amount of carbon dioxide in the environment.

They have a fast growth rate, and the capacity to be reproduced in salt water without fertilizers. The photosynthesis takes place in the presence of sunlight, a very reduced amount of phosphate and nitrate, and carbon dioxide.

If the conditions of microorganism growth changed, the microalgae growth would increase twice during 24 hours.

There is a certain type of microalgae that contains an oily substance exceeding a percentage of 50% of the total amount of the microorganism's components. The excess oil substance is used in the production of fuel. Other specific types of microalgae are used in the manufacture of medicine, which is our main subject in this scientific research.

What methodology was used in this research?

We evaluated the effectiveness of enzymatic treatment resulting from implementing the extracted proteins and colorful compounds of the microalgae and compared innovative and organic natural treatments with traditional treatments such as ultrasound waves and pressured water.



How did you discover the positive benefits of the enzymatic treatment? And why is it necessary to extract the proteins in order to proceed with this natural treatment?

We chose the enzymatic treatment because we are not obliged to expose the proteins to a high temperature. This innovative treatment has achieved many positive and successful results concerning the extracted proteins. Also, the amount of the proteins extracted from many different species of microalgae has attained a percentage of 70% of the total dry weight of the monocellular organism in comparison with the amount of proteins extracted from ultrasound wave treatment, which did not surpass 40%.

A scientific study was conducted in order to prove the effectiveness of lysozyme enzymes as opposed to that of cellulase enzymes. Another tested the activity of the antioxidant extracted protein. The results showed that *nannochloropsis* proteins registered a percentage of maximal activity at around 60%.

When did you get the idea of extracting medicine from microalgae in the UAE?

Studies of microalgae started in the Chemical and Petroleum Engineering Department in the College of Engineering at the United Arab Emirates University in 2010, for the purpose of producing an organic alternative to diesel. This innovative project was founded in cooperation with the Department of Mechanical Engineering and the Department of Chemical and Petroleum Engineering at UAEU, as well as the University of Auckland in New Zealand.

The study of microalgae was the topic of a doctoral dissertation by Dr Hanifa Al Baloushi, who graduated in 2014. The main interest of the study was to increase the percentage of oil components in the algae by controlling the mechanism of algae growth. The research group succeeded in increasing the percentage of oil components from 12% to 70%. During the deliberation and discussion of the dissertation in front of the research group from the Faculty of Biological Sciences in the University of Asics in UK, the different research parties agreed on the following: to take into con-

sideration and focus on other components present in the algae, in particular the proteins and colorful substances, for the purpose of using them in the manufacture of medicine. The official study in the above-mentioned field started in 2014.

What are the sources of the algae samples that you used in your research project?

Many samples of algae species are from a local source; they can be cultivated and found in the UAE. The specialized work team brought some types of species from the Marine Environment Research Center in Umm Al Quwain, as well as the University of New York in Abu Dhabi.

What are your future research aspirations concerning this project?

In the coming period, we are planning to focus on and test the effectiveness of extracted proteins and colorful substances as a powerful treatment for cancer and bacterial diseases. Our main concern is to define their effective components and mechanisms and control the factors and conditions that increase their growth.

What is the impact of the benefits of microalgae on human health? In which types of industries are they involved or implemented?

Algae organisms are considered to be a source of human nutrient ratios. They are used in many industries as well. Moreover, they are considered to be a rich source of oil that can be used to produce organic diesel. The development and cultivation of algae organisms helps to absorb carbon dioxide, and treat industrial wastewater.

Algae organisms are known for their benefits in the medical field. Therefore, they are included in the manufacture of medicine, the preparation of beauty and cosmetics products, and the production of different kinds of toothpaste.

In conclusion, algae microorganisms have many benefits to be exploited, providing there is enough water and appropriate environmental conditions for their cultivation. This has potential for the economic growth of the UAE and other countries, while having a multitude of advantages for human health.

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