

UAEU research team discovers a new use for date pits

UAEU researchers have discovered that date pits, typically a waste product, can treat pathogenic bacterial infections in animals, giving them a new, lucrative use...

The UAE is currently ranked as the world's fourth date producing country, with a harvest accounting for nearly a million metric tonnes a year.

Dependant on the particular variety and quality of the date, its pit makes up nearly 15 per cent of its total weight when the fruit is ripe.

As the UAE produces approximately 70,000 tonnes of date pits – or stones – each year, but there has been no immediate obvious use for them.

Typically, this apparent waste product of date production is either discarded or, on occasion, used as animal feed but for the latter, the pits need to be soaked in water for several days to make them soft enough for the animals to eat.

Consequently, date processing factories have been selling-off unwanted date pits for literally next to nothing.

That was until recently, but a discovery here in Al Ain has suggested there is another, more practical and potentially lucrative use for the pits which could also help in raising animals without the need for expensive commercial antibiotics.

Researchers at the United Arab Emirates University (UAEU) here have discovered that compounds from unwanted pits can be effective in inhibiting a range of pathogenic bacteria in chickens – holding out the future possibility of treating pathogens such as Salmonella, Campylobacter, Shigella and E-coli, without recourse to expensive and possibly harmful commercial antibiotics.

This breakthrough has already been granted a European patent.

Professor Ahmed Hussein from the UAEU's College of Food and Agriculture, along with



Professor Ahmed Hussein who headed the research team with UAEU PhD student Salem R Al-Yileili

his research team, discovered that date pits degraded by fungi were as effective as synthetic antibiotics.

His Excellency, Sheikh Hamdan Bin Mubarak Al Nahayan Minister of Education and Scientific Research and Chancellor of UAEU, personally met with the research team to congratulate them on their accomplishment.

He commended them on their continuous research efforts to seek solutions to the challenges facing the wider community, which is in line with the visions of the UAEU and contributes to the development of the UAE as a modern and successful nation, recognised both regionally and internationally.

Dr Al Rashid Al Noaimi, UAEU Chancellor, also commended this remarkable biomedical achievement and stressed the university's interest and commitment to scientific research.

"UAEU pursues excellence in probing for new and significant scientific discoveries which can be translated into tangible social benefits, whether in the fields of medicine and health, food and agricultural development or the environment," he said.

Currently the poultry, fish and livestock industries supplement animal feed with synthetic antibiotics to improve the growth of animals and the efficiency of their feeding cycle. These synthetic antibiotics also protect the animals from both pathogenic and non-pathogenic enteric microorganisms.

However, the use of synthetic antibiotics can cost the various industries many billions of dollars every year.

Professor Hussein, who teaches Poultry Nutrition in the Department of Arid Land Agriculture at the university explained: "Commercial antibiotics add to the cost of raising chickens for food. The 'waste product' date pit could be fed to poultry as a supplement instead."

The Professor's research team included Salem Al-Yileili, an Emirati PhD student at UAEU; Dr Ibrahim Belal from the College of Food and Agriculture and Dr Khalid Al-Tarabily from the Biology department in the College of Sciences.

Salem, who is still studying for his Doctorate, said: "It was exciting being involved in such cutting-edge research which has both national and international importance."

This breakthrough in natural antibiotics could not have been achieved without the continuous support of the UAE government and the administration, faculty and staff at UAEU.

"The research team worked for three years to first develop and then refine the process, treating the date pits with specific fungi to produce the desired antimicrobial activity.

"Such research may be just the start of even greater discoveries and important breakthroughs," explained Professor Hussein. "This is something that UAEU, with its state-of-the-art facilities, highly qualified faculty and motivated students, is well placed to pursue.

"We understand only part of the mechanism, we are still looking for more information on how the degradation products of date pits work to reduce the colonisation of pathogenic bacteria in the digestive systems of chickens and fish."

Due to potential interest in this invention, the Intellectual Property and Technology office at UAEU decided to register the innovation in the UAE, USA and Hong Kong Patent Offices as well as in Europe and a patent certificate was expected to have been granted by Hong Kong by the end of last month.

