

SYRIAN ARAB REPUBLIC

MONITORING VETERINARY DRUG RESIDUES IN FOOD



as Syria seeks to collaborate with existing or related IAEA technical cooperation projects.

As a result, and in line with its national development plan for 2016, Syria established a technical cooperation project (SYR5024) which aimed to enhance food and animal feed safety to mitigate the risk to human beings, animals and the environment.

The project also sought to achieve the following:

- * To set up a laboratory capable of detecting various types of residues and assessing the risk of the tested and other compounds to human health;
- * To train the staff on how best to perform and apply the methodologies and technologies; and
- * To assess the abuse of the tested and other compounds, and improve public health.

ACTIONS TAKEN

The following actions were taken under the technical cooperation project, SYR5024:

- * Establishment of a laboratory capable of monitoring and detecting various types of residues,
- * Screening and monitoring of selected compound residues; and
- * Assessment of the risk of the tested compounds on human beings, animals and the environment.

The project strategy was as follows:

- * The laboratory was equipped with an enzyme-linked immunosorbent assay (ELISA) reader and related kits for

THE SITUATION

The food and agriculture sector is one of the top priority areas in Syria. There is growing concern about the dangers of veterinary drug residues (including, but not limited to, natural and synthetic hormones, antimicrobial agents, anthelmintic agents, antiprotozoal agents, growth promoters, beta agonists, etc.) on human health, as well as an urgent need for screening programmes to ensure that animal products used for human consumption are free from residues of any type.

But such programmes and methodologies were previously not available in Syria. The

few studies that were done mainly addressed steroid hormones, such as progesterone and testosterone, using blood plasma or serum.

Syria, therefore needed a programme that would expand both the number and types of materials to be assessed. The programme would leverage existing partnerships and enhance relations with institutions such as the Radiation Technology Department and the private industry, including importers.

A number of Syrian government ministries, such as the Health and Agriculture, Higher Education and Internal Trade and Consumer Protection ministries, have a special interest in such a programme. Their involvement is important

rapid screening of contaminants. Other equipment included a multi gamma counter, homogenizer, rotary evaporator, centrifuge, balances, mixers, pipettes, and chemicals, which were received through the IAEA.

- * A Veterinary Drug and Growth Promoters Laboratory was established by the Atomic Energy Commission of Syria (AECS) with basic glassware and consumables.
- * Capacity building was enhanced through six fellowships and nine scientific visits.
- * Different stakeholders were engaged in the project implementation process. Close collaboration was maintained with the General Commission for Scientific Agricultural Research. The Ministry of Agriculture, meanwhile, provided the animals needed for testing experiments.

The project aimed to benefit the Syrian people, the livestock industry and the environment.



Top and below: The laboratory for Naturally-Occuring and Synthetic Anabolic Hormones and Veterinary Drug Residues in Animal Products and Feeds with basic equipment, glassware and consumables (Photo: M. Zarkawi/ AECS).

ACHIEVEMENTS

Food and feed safety in Syria improved remarkably with the implementation of the technical cooperation project, SYR5024.

In 2017, a laboratory specializing in veterinary drug residues and in the analysis of growth promoters was set up at the Department of Agriculture, Atomic Energy Commission in the capital Damascus.

This laboratory is equipped with related equipment, basic glassware, chemicals, consumables and other materials. In future, this laboratory is expected to serve as the regional laboratory.

HPLC-UV/VIS Technique. In 2018, the high performance liquid chromatography with ultraviolet/visible (HPLC-UV/VIS) technique was introduced and laboratory staff were trained accordingly on its use.

In 2019, the laboratory started analysis of the antibiotics, Teteracyline, Oxytetracycline, chlortetracycline, in liquid milk samples according to the Ullah et al. 2012 method.

Since there is very little or no regional information available on growth hormones and veterinary drug residues in feeds and food, the results and outcomes of the project can be shared with other countries in the region.

The information can possibly also be shared with international organizations, such as the Food and Agriculture Organisation (FAO) of the United Nations, the World Organisation for Animal Health (OIE), and the World Health Organisation (WHO) for further dissemination. Project results and outcomes can likewise



be presented in meetings, seminars and conferences, and published in international peer reviewed journals.

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