# International warning issued on drug-resistance from agricultural fungicides

March 1 2013

The European Centre for Disease Control has today announced it is examining current evidence for the possible environmental origin of drug resistance in a group of diseases known as Aspergillus infection, following Manchester research.

The EDCD report was prepared with the support of European and US experts, including a team at The University of Manchester.

In its risk assessment, ECDC examines current evidence for the environmental origin of resistance to medical triazoles - a drug used to treat Aspergillus infection. Aspergillosis is usually an incurable disease of the lungs caused by the fungus Aspergillus. It is treated using antifungal antibiotics called triazoles but researchers at Manchester have found that the fungus has been able to mutate making treatment ineffective.

The ECDC's report now makes recommendations for further steps to assess the risks and consequences of the environmental usage of triazole fungicides – which are widely used in crop protection and material preservation in Europe. Over 90% of plant diseases are caused by fungi.

ECDC estimated that 2,100,000 patients may be suffering from allergic aspergillosis and 240,000 from chronic aspergillosis across Europe each year. In addition, an estimated 63,250 cases of invasive aspergillosis, annually complicates the management of other diseases including leukaemia, transplantation, chronic obstructive pulmonary disease and

medical intensive care.

Triazole therapy has become the established treatment for human Aspergillus diseases. However, triazole resistance appears to have been increasing in several European countries in recent years. If present, such resistance can severely limit treatment options. The inability to treat patients with triazole antifungals due to resistance has a significant impact on patient management (88% mortality) and associated health costs.

Results from published studies suggest that triazole resistance has evolved in the environment and could be driven by the selective pressure of triazole fungicides routinely sprayed on numerous crops. Although evidence supporting this hypothesis is growing, the link between the environmental use of azole fungicides and the development of triazole resistance in patients with Aspergillus infection is not yet proven.

The report concludes on the importance of improved surveillance and diagnosis of resistance in Aspergillus, as well as the development of further environmental and laboratory studies to confirm the environmental hypothesis.

Professor David Denning, Professor of Medicine and Medical Mycology, and Dr Paul Bowyer, a senior lecturer in Molecular Biology, from The University of Manchester were involved in the research. The Manchester researchers, who are based at the University Hospital of South Manchester, have published several papers on azole resistance. Professor Denning, described this phenomenon for the first time in 1997, and is Director of the National Aspergillosis Centre.

Professor Denning welcomed the ECDC's report. He said: "The medical and public health communities need to be alerted to this resistance problem and look at possible means of dealing with it. Resistance rates

continue to be problematic in patients."

**More information:** To view the report, click here.

Provided by University of Manchester