

Suspicious packages

Barry Holmes discusses the increasing controls on the supply of dangerous microorganisms and the transportation of pathogens



EUROPE HAS SEEN significant changes since its two World Wars. In recent times, following economic collapse in the USSR, many former Soviet-dominated countries regained independence, culminating in a European Union (EU) enlarged from 1st May 2004 to encompass 25 countries. Such advances yielded the promise of a prosperous and more peaceful world. Regretfully, the events of September 11th 2001 and the Madrid bombings in March 2004, show that lasting peace remains elusive. We are all now drawn in to a different kind of war in which conventional weaponry has little place. All of us are potentially in the front line, so we all have to be on our guard against the threats of terrorism, even if this amounts to no more than reporting suspicious packages left on a bus or train.

A variety of weapons could be employed by terrorists and of concern to us here are the dangerous microorganisms, those that could infect man, other animals, or crops.

It is incumbent on microbiologists to do their best to ensure that these hazardous microbes do not fall into the hands of those who would misuse them. This is not purely a responsibility of national culture collections but applies equally to any hospital or university laboratory that has acquired or isolated dangerous microorganisms and stored them away. Responding to the bio-terrorist threat has resulted in various legislative changes in various countries. Below, these changes are reviewed. Whilst the emphasis is on the UK, similar developments are or have taken place within the EU member states and other countries throughout the world.

Sending cultures overseas

Within the UK, export controls on certain dangerous microorganisms have been with us since 1993. The most recent legislation is the Export Control Act 2002, which came into force on 1st May 2004. Guidance on the impact of this legislation on those in academia or

registered with the DTI to export to countries such as Australia, Japan and the USA without an individual export licence. With the withdrawal of that facility, an individual export licence application must now be made even for those countries (see table 1).

Sending cultures within the UK

The two main areas of legislation are described below.

Specified Animal Pathogens Order (SAPO) 1998

Within the USA, all facilities holding dangerous pathogens must be registered, cultures can only be supplied to facilities that have also registered and the actual transfer is controlled via the Centers for Disease Control and Prevention (CDC), Atlanta, through the transfer Form EA101.

Similarly, within the UK, the supplier of dangerous organisms specified under SAPO must be in possession of a licence from the Department for Environment, Food and Rural Affairs (DEFRA); formerly the Ministry of Agriculture, Fisheries and Food (MAFF) permitting the supplier to hold these organisms. It is a requirement, under the Order, that those customers wishing to obtain such cultures must themselves hold a licence from DEFRA to do so. Thus, licence holders receiving requests for hazardous pathogens must not supply them unless or until the customer can furnish a copy of their own licence. In addition, before the cultures are despatched, DEFRA must have agreed to the issue of a transfer licence. Further information can be obtained at: www.defra.gov.uk/animalh/diseases/control/animal_pathogens.htm. It is unfortunate that with only DEFRA exercising such controls, there are no similar controls on the movement of non-animal pathogens such as *Burkholderia pseudomallei* and *Yersinia pestis*.

Anti-terrorism, Crime and Security Act 2001.

Part 7 of the Anti-Terrorism, Crime and Security Act 2001 requires holders of hazardous pathogens (and toxins), listed in Schedule 5 of the Act, to be registered with the Home Office. Full details of the Act can be obtained at: www.legislation.hmso.gov.uk/acts/acts2001/20010024.htm. Registration can be achieved by email to: pathogens@homeoffice.gsi.gov.uk, or by post to: Pathogens Notifications, 6th Floor, West Wing, Home Office, 50 Queen Anne's Gate, London SW1H 9AT

Table 1. The control and Supply of dangerous microorganisms

Within the EU, one may not know the customer requesting dangerous microorganisms and there could be concerns of organisms supplied being passed on. It may thus be wise to contact the DTI (or equivalent) to check that the requestor is as claimed.

Additional organisms and toxins are likely to come under the export control regulations in the near future, including St Louis encephalitis virus, enterohaemorrhagic *Escherichia coli* and strains of *Clostridium perfringens* producing the epsilon toxin. The existing and proposed additional controlled organisms can be viewed at:

http://www.australiagroup.net/en/control_list/bio_agents.htm (human pathogens) and http://www.australiagroup.net/en/control_list/animal.htm (animal pathogens).

Remember that, apart from the export controls, you also need an import licence from an increasing number of countries (e.g., Australia, Canada, New Zealand and the USA) before you ship hazardous microbes.

The deliberate releases of *Bacillus anthracis* via the postal system in the USA illustrate what can happen. Attempts to fraudulently obtain cultures of dangerous microorganisms from culture collections date back to at least 1984, when FBI agents arrested two Canadians attempting to collect cultures of *Clostridium botulinum* and *C. tetani* (Budiansky 1984). It is known that al-Qaida tried to establish a biological warfare programme in Afghanistan (Petro & Relman 2003; see also www.sciencemag.org/cgi/content/full/302/5652/1898/DC1).

engaged in research can be found at: www.dti.gov.uk/export.control/publications/academguide.pdf.

One needs to register with the Department of Trade and Industry (DTI) prior to supplying hazardous pathogens to countries in either the EU or throughout the rest of the world. For countries outside the EU, the most common practice is for an application to be made to the DTI, by a nominated employee, for an individual export licence for each proposed shipment. Until 7th March 2003, Community General Export Authorisation EU001 permitted those

or by faxing 020 7273 2773. Facilities that register can expect a visit from a police security specialist who will advise on any enhanced security measures deemed necessary.

Receiving cultures in the UK

If cultures are to be sent to you from the UK or anywhere else in the EU, if the organism is covered by the Specified Animal Pathogens Order 1998, then one must hold a licence from DEFRA beforehand. If you wish to import animal pathogens from outside the EU, then an import licence will need to be already held or obtained, as required under the



Importation of Animal Pathogens Order (IAPO) 1980. For more information, again refer to:
www.defra.gov.uk/animalh/diseases/control/animal_pathogens.htm.

For the majority of the animal pathogens listed under SAPO, an import licence will have to be applied for case-by-case and will not be granted unless the organisation already possesses a valid holding licence. If the hazardous pathogen is received from any part of the world, then if it is listed in Schedule 5 of the *Anti-Terrorism, Crime and Security Act 2001*, you must register with the Home Office, Pathogens Notifications department.

Safeguards

As well as the legislation, anyone can adopt the following common sense procedures when receiving a request to supply dangerous microorganisms.

- *Do not dispatch cultures to private addresses.*
- *Do not accept electronic orders for hazardous pathogens; require all such orders to be on official headed notepaper and submitted by fax or post.*
- *Require that the customer Head of*

many in the microbiological community have, in the past, taken cultures on their person to pass on to colleagues at international meetings and so on. In the present climate, however, one must strongly countenance against doing so. What customs official would be impressed by "But it's only an *Escherichia coli*?" Be warned by the experience of the American microbiologist Thomas Butler, who was arrested and tried on several charges arising from his personal carriage of specimens from more than 60 Tanzanian bubonic plague victims (Enserink & Malakoff 2003). He was found guilty on three counts (among others) of unauthorised export, making a false statement on a shipping bill and illegal transportation of hazardous materials.

Further Information

- www.defra.gov.uk/animalh/diseases/control/animal_pathogens.htm.
- www.legislation.hmso.gov.uk/acts/acts2001/20010024.htm
- www.sciencemag.org/cgi/content/full/302/5652/1898/DC1
- www.dti.gov.uk/export.control/publications/academguide.pdf.
- **Human pathogens**
http://www.australiagroup.net/en/control_list/bio_agents.htm
- **Animal pathogens**
http://www.australiagroup.net/en/control_list/animal.htm
- Pathogens Notifications, 6th Floor, West Wing, Home Office, 50 Queen Anne's Gate, London SW1H 9AT

Department/Managing Director completes a form authorising which persons are able to place orders for dangerous organisms. Retain these forms on file and whenever a customer places an order for hazardous pathogens, a visual comparison can be made that the signature on the order matches an authorised signature on the authorisation form for that customer. Cultures should be despatched only to the authorised signatory of that particular order.

I shall not enter the subject area of proper shipping requirements. However,

References

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- Petro, J. B. & Relman, D. A. 2003, 'Understanding threats to scientific openness,' *Science*, vol. **303**, p. 1898.

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