

Public Safety Briefing Sheet

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Subject: Ricin

Ricin is a toxic protein derived from castor beans (*Ricinus communis*). For use as a weapon, ricin is usually produced as a dry agent (compacted or loose powder) and disseminated to produce intoxication by inhalation, ingestion, or injection. The most common methods used for disseminating ricin include aerosol, contaminated consumables, and via contaminated projectiles.

As a non-living biological agent, ricin is exceptionally toxic. In a concentrated form, .01-.5 milligrams of ricin will produce lethal effects in 100% (LD100) of exposed victims by ingestion. In raw form, 2-6 castor beans contain enough ricin to produce lethal effects in humans. When used as an inhalation toxin, ricin is approximately 2-3 times as toxic as the chemical agent sarin. However, practical dissemination of ricin by aerosol is difficult and most nations (other than Iraq) dismissed use of ricin as a reliable biological agent for aerosol delivery.

Symptoms of ricin intoxication include abdominal cramps, bloody diarrhea, circulatory difficulties, confusion, cyanosis, conjunctivitis (inflamed mucus membrane), miosis (constricted pupils), somnolence (drowsiness), oliguria, (reduced urination), dehydration, lethargy, nausea, vomiting, respiratory distress, and seizures. Specific symptoms vary depending on the route of absorption. Depending on the dose, symptoms usually onset within 6-48 hours. Medical treatment for ricin intoxication is primarily limited to supportive care.

Ricin has been standardized as a biological agent by a number of countries including the US, UK, Canada, Bulgaria, Russia, Iraq, and Hungary. However, Iraq is the only country since WWII to produce military munitions employing ricin (the Iraqi 155mm BW artillery projectile). Most nations used ricin for special operations purposes—primarily as a poison for assassinations. One high profile example of ricin used in this application includes the successful and attempted assassinations of two Bulgarian dissidents and a KGB double agent in the UK and US. The perpetrator in these incidents was the former Bulgarian intelligence service with technical support from the KGB. In the “Bulgarian incidents”, the means of dissemination was a tiny hollow platinum/iridium ball (.068” diam) filled with ricin. Despite common statements that an umbrella weapon was used to project the ball into the victims, the actual delivery system for the ball remains unknown.

It is suspected that this same method was used in several other assassinations during the late 1970s and early 1980s.

Extracting and concentrating ricin for terrorist applications is relatively easy. Several books in the public domain include reliable and simple instructions for concentrating ricin. The Al-Qaeda manual also contains instructions for producing ricin. The source of the toxin, the castor bean plant, is very common worldwide and is used extensively here in the US in residential gardens.

Use of ricin by terrorists or criminals is not new. Traces of ricin have been discovered at Al-Qaeda sites in Afghanistan and ricin has also been seized from criminal perpetrators and right wing extremists in the U.S. and Canada. To date, most non-military incidents where ricin was actually employed failed to result in effective intoxication of the intended victims. These failures were largely due to poor choice of dissemination and delivery methods.

For more information regarding ricin or the terrorist employment of chemical and biological agents, contact:

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