

(www.drugtestinganalysis.com) DOI 10.1002/dta.89

Ricin poisoning and forensic toxicology

Frank Musshoff and Burkhard Madea

Drug Testing and Analysis 2009; 1: 363–364

DOI: 10.1002/dta.27

It has come to our attention that this published article contained an error, although the authors corrected the error in the proof

The Tables numbered 1 and 2 appeared in the wrong order within the article. The Tables in question are repeated below in their correct order.

Table 1. Clinical symptoms and progression of disease associated with ricin poisoning by route of exposure. Source: Department of Health and Human Services^[4]

Route of exposure	Common clinical symptoms	Progression of disease
Inhalation	<ul style="list-style-type: none"> • Rapid onset of irritation of nose and throat • Respiratory distress possibly leading to respiratory failure • Dyspnoea (difficulty breathing) • Pulmonary oedema • Flu-like symptoms of fever, weakness, nausea, myalgia (muscle pain), or arthralgias (aches and pains in joints) 	<ul style="list-style-type: none"> • Cough, difficulty breathing, flu-like symptoms within 4–8 h • Hypotension and pulmonary edema within 18–24 h • Death may occur within 36–72 h
Ingestion	<p><i>Mild:</i></p> <ul style="list-style-type: none"> • Nausea, vomiting, diarrhoea, abdominal cramping and pain <p><i>Moderate to severe:</i></p> <ul style="list-style-type: none"> • Persistent vomiting and voluminous diarrhoea (bloody or non-bloody) • Dehydration and hypovolemic shock • Hepatic and renal failure possible • Mild haemolysis (not requiring blood transfusions) • Liver and kidney dysfunction 	<ul style="list-style-type: none"> • Rapid onset of nausea, fever, and abdominal cramps within 1–6 h • GI symptoms may occur as late as 10 h • In mild cases, the symptoms often resolve in 24 h • In severe cases death may occur within 36–72 h
Parenteral (injection)	<ul style="list-style-type: none"> • Flu-like symptoms with fatigue and myalgias • Local necrosis of muscles and regional lymph nodes at injection site • Pain at injection site • Weakness, fever and/or vomiting • Shock • Multisystem organ failure 	<ul style="list-style-type: none"> • Weakness or pain at site of injection within 5 h • Fever and vomiting within 24 h • Death may occur within 36–48 h

Table 2. Overview of ricin detection methods based on Lubelli *et al.*^[51] and Ler *et al.*^[86] with no demand for completeness

Detection technique	Limit of detection (ng/ml)	Reference
Quartz crystal microbalance sensors	5000	[52]
Fluoroimmunoassay	1000	[53]
Biosensor assay	320	[54]
Lateral flow devices	250	[55]
ELISA	80	[49]
Inhibition of lysozyme	80	[56]
Immunochromatographic assay	50	[44]
Immunocapture coupled with LC-MALDI MS	50	[57]
ELISA with colorimetric measurement	40	[39]
Microarray biosensor assay	10	[58]
Immunoassay	5	[59]
ELISA	5	[55]
Fluoroimmunoassay	1	[60]
Immunochromatographic test	1	[61]
Biosensor assay	0.5	[46]
Microelectromechanical sensors assay	0.4	[62]
Sandwich avidin/biotin ELISA	0.2	[41]
Microarray biosensor assay	0.18	[63]
Biosensor assay	0.1	[43]
Immunoassay on gel-based microchips	0.1	[45]
Chemoluminescence ELISA	0.1	[40]
Protein array	0.1	[64]
Immunocapture coupled with LC-ESI-MS/MS	0.1	[65]
Radioimmunoassay	0.05–0.1	[37]
Bioassay	0.01–0.1	[66]
Luciferase-based assay	0.001	[67]
Piezoelectric detection	10 µg/crystal	[68]
Immuno-polymerase chain reaction	0.00001	[51]

The publisher wishes to apologise to the authors and readers for this error and any inconvenience caused.