

## **Oocysts of *Cryptosporidium parvum***

### **Introduction**

*Cryptosporidium* species, a coccidian protozoan, is of cosmopolitan distribution, occurring in both developed and underdeveloped countries and causing infection in both humans and their livestock. *C. parvum* is the species responsible for human infection.

### **Pathogenesis**

*C. parvum* is now widely recognised as a cause of acute gastroenteritis, particularly in children. The infection produces a persistent, watery, offensive diarrhoea often accompanied by abdominal pain, nausea, vomiting and anorexia.

Cryptosporidiosis in immunocompromised individuals, especially in AIDS patients, can be life threatening. Infections are characterised by the production of frequent, large volume watery stools and sometimes there is invasion of the biliary tract, pancreas or respiratory tract.

Oocyst excretion and symptoms may fluctuate during the course of infection.

Asymptomatic infections are commonly found in developing countries with poor hygiene, where there is close contact with livestock.

### **Laboratory diagnosis<sup>1</sup>**

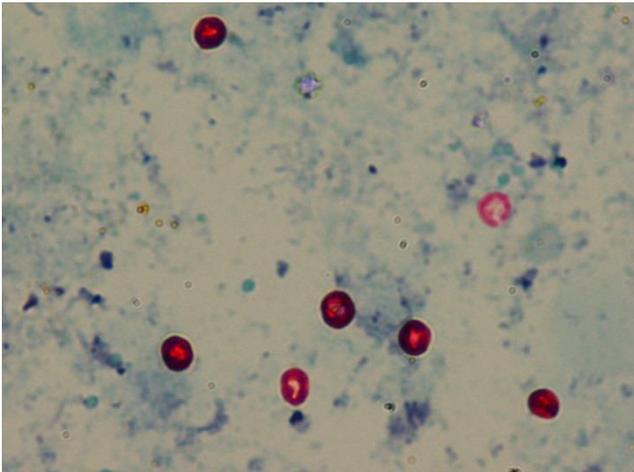
Definitive diagnosis of cryptosporidiosis is by finding the characteristic spherical oocysts in faecal samples. The oocysts measure 4-6 µm in diameter and when mature contain up to 4 sporozoites. They do not concentrate well using standard concentration techniques and are identified using various staining techniques.

Using the modified Ziehl-Neelsen, the oocysts are acid fast. However, staining within a smear and between specimens is diverse, varying from unstained to partial red staining and complete staining. Fully sporulated forms can be seen in which the red staining sporozoites can be seen within an unstained oocyst wall.

When staining the faecal smear with phenol-auramine/carbol-fuchsin, the oocysts appear as bright yellow discs with an "erythrocyte" pattern of staining against a dark red background.

Detection of the oocysts can also be achieved by using specific polyclonal or monoclonal antibodies conjugated to fluorescein. These tests are now commercially available and offer a high degree of sensitivity. However, caution must be exercised when they are used to detect oocysts in the faecal smears distributed by NEQAS parasitology. Such specimens are preserved

in formalin which interferes with the fluorescent staining of the parasites and they are thus difficult to detect.



Cryptosporidium stained with modifies ZN