May *Staphylococcus pseudintermedius* be non-haemolytic?

*Staphylococcus pseudintermedius* is a common veterinary pathogen but a rare agent of human diseases (Savini *et al.*, 2013a). It belongs to the *Staphylococcus intermedius* group (SIG) together with *Staphylococcus intermedius* and *Staphylococcus delphini* (Savini *et al.*, 2013a).

In the past years, diverse phenotypical aspects have been used to discriminate among the three SIG members; nonetheless, it is nowadays clear that neither biochemical nor metabolic features can be considered as pathognomonic (Savini *et al.*, 2013a).

However, it is known that *S. (pseud)intermedius* exhibits typical double-zone haemolysis (Fig. 1) that is β-haemolytic in the inner band but α-haemolytic (due to β-haemolysin, a sphingomyelinase) on the external one (Devriese *et al.*, 2005; Savini *et al.*, 2013a). Preliminary recognition of this species should then rely on the observation of coagulase-positive staphylococci (CoPS), that do not ferment mannitol (or show a weak and delayed fermentation of this sugar) and produce double-band haemolysis on sheep blood agar (Devriese *et al.*, 2005; Savini *et al.*, 2013a).

In fact, mannitol non-fermenting CoPS other than *S. pseudintermedius* (*Staphylococcus lutrae*, *Staphylococcus schleiferi* subsp. *coagulans* and *Staphylococcus aureus* subsp. *an aerobius*) are haemolytic, but they do not form such a particular kind of haemolysis (Savini *et al.*, 2013b).

Unexpectedly, and although initially describing *S. pseudintermedius* as haemolytic (in general), Awji instead stated that the organism can be presumptively differentiated from *S. aureus* as the former lacks β-haemolysis (on sheep blood agar) (Awji *et al.*, 2012). Indeed, this is an interesting finding. Even in the era of the genome, in fact, accurate phenotype observation remains crucial to reaching a conclusive bacterial diagnosis. Accordingly, it is known that *S. (pseud)intermedius* has to be distinguished from the rare, double-zone haemolytic *S. aureus* strains that do not ferment mannitol, thus mimicking SIG members (Cebrián *et al.*, 2007; Savini *et al.*, 2013b).

In the light of Awji’s datum, however, and provided that the presence of non-β-haemolytic *S. pseudintermedius* strains (grown on sheep blood agar) receive further confirmation, the diagnostic algorithm of CoPS should be reconsidered.

**Conflict of interests**

The authors have no conflict of interests to declare.

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**Abbreviation:** CoPS, coagulase-positive staphylococci; SIG, *Staphylococcus intermedius* group.


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**Fig. 1.** Double-zone haemolysis by the human *S. pseudintermedius* strain DSM 25714 collected in the Bacteriology laboratory, Clinical Microbiology and Virology, Spirito Santo Hospital, Pescara, Italy, and cited in Savini *et al.*, 2013a.
