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Short Communication

Comparative of phenotypic tests in aerobic actinomycetes

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Dear editor

I read with interest article that published entitled *Isolation and identification of bioactive compound producing *Rhodococcus* spp. isolated from soil samples {*IJMCM*/5(1) (2015) 463-468}* (Aghaei and Baserisalehi, 2015). Some of the genus such as *Nocardia*, *Gordonia*, *Mycobacterium* and *Rhodococcus* are in actinomycete family and they are Gram-positive and partially acid-fast. *Rhodococcus* species usually stain Gram-positive. Cells form as cocci or short rods which grow in length, and may form an extensively branched vegetative mycelium which may fragment. Microscopic aerial hyphae and spores are not usually produced. They are also non-motile. They are usually partially acid-fast due to the mycolic acid in their cell walls. Colonies of other rhodococci may be rough, smooth or mucoid and pigmented cream, buff, yellow, coral, orange or red. Although biochemical tests help to distinguish *Rhodococcus* from other organisms, differentiation from other aerobic actinomycetes can be difficult. Colonial and cell morphology cannot be used to distinguish among *Rhodococcus*, *Gordonia* and *Tsukamurella* species. I listed some of phenotypic characterization of *Nocardia*, *Gordonia*, *Mycobacterium*, *Rhodococcus* and *Corynebacterioum* in table 1 (Goodfellow, 1973; Goodfellow, 1974; Bell et al., 1998; Prescott 1991; Arenskötter et al., 2004; Stoecker et al., 2004; Li et al., 1994; Bafghi, 2015) and showed phenotypic tests such as microscopic examination, Gram and acid-fast staining, catalase, oxidase and motility tests that used by Aghaei et al is insufficient for the genus *Rhodococcus* confirmation. In literature, results of phenotypic tests are ambiguous for *Rhodococcus* identification and cannot distinguish the genus *Gordonia* of *Rhodococcus*. (Blanc et al., 2007) Authors do not explain about phenotypic tests results in this article and results are equivocal. Phenotypic tests with molecular methods such as sequence analysis of the 16S rRNA gene and PCR-RFLP (polymerase chain reaction-restriction fragment length polymorphism) should be better used for accurate identification in the genus level (Bell et al., 1998; Bell et al., 1999; Steingrube et al., 1997; Silva et al., 2012) that authors don't mentioned in article.

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Table 1. Various phenotypic tests in aerobic actinomycetes.

Genus	soil	ISP5 agar	Bennet agar	Aerial hyphae	Gram	Acid-fast	Partially-acid fast	Motile	Catalase	Oxidase
Nocardia	+	+	+	+	+	*–	+	–	+	–
Gordonia	+	+	+	–	+	*–	+	–	+	–
Mycobacterium^{NTM}	+/–	–	+/–	–	+	+	+	+/–	+	+
Rhodococcus	+	+	+	–	+	*–	+	–	+	–
Corynebacterium	+/–	+/–	+/–	–	+	–*	+	+/–	+/–	+/–

*In special circumstances are positive. NTM: non-tuberculosis mycobacterial

Refereces

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