

Antibacterials From Offal

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A new bacterium obtained from the byproduct of leather tanneries can now be used as source of antibacterials, claim scientists at the SRM University, Tamil Nadu and Srimuthukumaran Medical College and Research Institute, Tamil Nadu in their recent study.

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Secondary metabolites are natural compounds isolated from plants, animals and microbes that are used as antimicrobials, antioxidants and anticancer drugs in pharmaceutical industry. For example, Rifamycin that is a potent drug to cure tuberculosis is derived from a bacterium *Amycolatopsis rifamycinica*, and taxol that is a potent anticancer drug is derived from the plant *Taxus baccata*. Excessive use of antimicrobials have resulted in the development of many drug resistant microbes and pathogens, hence, there is an urgent need to improve existing antibiotics and find newer and better compounds with antibacterial and antioxidant properties.

Researchers at the SRM University, Tamil Nadu in collaboration with Srimuthukumaran Medical College and Research Institute, Tamil Nadu have identified new antibacterials from *Paracoccus pantotrophus*- a naturally occurring bacterium that resides in the gut of animals such as sheep, cow, and lamb that are used in leather industry. They obtained animal fleshing from a slaughterhouse, filtered it through a muslin cloth, and used the filtrate obtain a crude extract that showed antibacterial activity against several pathogens that cause diseases in humans. The scientists used a technique called GC-MS to identify a total of 36 compounds in the crude extract, of which 8 compounds exhibited antibacterial activity. The scientists claim, "These molecules are not only active against clinical pathogens such as *Salmonella sp.* and *Proteus sp.* and also effective against MDROs (multi drug resistant organisms) such as Metallo- β -lactamase and Pan drug resistant bacterial strains and Methicillin resistant *Staphylococcus aureus*".

Indian leather tanneries generate approximately 150 thousand tons of offal or decomposing animal flesh as solid waste that is extremely difficult-to-manage and poses serious environmental and health hazards. Using animal fleshing waste to generate secondary metabolites would serve dual purpose- help dispose solid waste, and generate newer antimicrobials to mitigate multidrug resistance in pathogens.

Ref: *Indian Journal of Microbiology* **56** (4): 426-432.