# 3.4.3 Research Papers Published During Year 2018-19

| Title of paper | Name of the author/s | Department of the teacher | Name of journal | ISSN number | Is it listed in UGC Care list |
|---|---|---|---|---|---|
| Acinetobacter sp. mediated synthesis of AgNPs, its optimization, characterization and synergistic antifungal activity against C. albicans | Singh R | Biotechnology | Journal of Applied Microbiology | 1365-2672 | YES |

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ORIGINAL ARTICLE

## *Acinetobacter* sp. mediated synthesis of AgNPs, its optimization, characterization and synergistic antifungal activity against *C. albicans*

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**Keywords**
*Acinetobacter* sp., AgNPs, antifungal, biofilm, *C. albicans*, disrupt morphology, reactive oxygen species.

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**Abstract**

**Aims:** To synthesize silver nanoparticles (AgNPs) with cell free extract of *Acinetobacter* sp. and evaluate antifungal activity against planktonic and biofilm of *Candida*. Also, to study mechanism of antifungal action of AgNPs.

**Methods and Result:** *Acinetobacter* spp were screened for synthesis of AgNPs. Physio-chemical parameters were optimized to obtained monodispersed nanoparticles. Optimized nanoparticles were characterized using spectroscopic, microscopic and diffraction techniques. Antifungal and biofilm disruption activity of AgNPs ($10 \pm 5$ nm) were investigated against *C. albicans*. Mechanism of antifungal activity of nanosilver was deduced by growth curve, reactive oxygen species generation, thiol interaction and microscopic analysis. *Acinetobacter* sp. GWRFH 45 gave maximum synthesis of AgNPs. At optimized condition monodispersed, spherical nanoparticles were obtained which were crystalline with negative surface charge. AgNPs exhibited antifungal activity against planktonic cells and biofilm of *Candida*. AgNPs showed synergistic effect with amphotericin B as well as fluconazole against biofilm disruption. AgNPs were found to affect growth of *Candida*, generate reactive oxygen species and disrupt cellular morphology.

**Conclusions:** Cell free extract of *A. calcoaceticus* GWRFH 45 has ability to synthesize AgNPs. AgNPs alone and in combination with drugs have potential to inhibit *C. albicans*.

**Significance and Impact of the Study:** This is the first report of bacteriogenic AgNPs used in combination with antifungal drugs against *Candida*.

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| The Genesis, Evolution and Success of the Uralungal Labour Contract Cooperative Society | Sampath Sambasivan | Economics | Review of Agrarian Studies | 2248-9002 | YES |

# The Genesis, Evolution, and Success of the Uralungal Labour Contract Cooperative Society

Sampath V. Sambasivan*

Isaac, T. M. Thomas, and Williams, Michelle (2018), *Building Alternatives: The Story of India's Oldest Construction Workers' Cooperative*, LeftWord Books, New Delhi, 320 pages, Rs 450.

In recent times, following the declaration of 2012 as International Year of Cooperatives by the United Nations General Assembly, cooperatives have attracted renewed global attention. A Global Census on Cooperatives was undertaken by the United Nations Department of Economic and Social Affairs (UN DESA) in 2014 to assess the size and scope of the cooperative economy. According to the census, 12.6 million persons were employed by cooperatives across the world in a wide range of sectors. Thus, on average, one out of every six persons in the world was a member or client of a cooperative. Given the size and complexity of cooperative systems in India and China, the UN DESA decided to conduct additional field research on cooperatives in these two countries (Dave Grace and Associates 2014). In this context, the study conducted by T. M. Thomas Isaac and Michelle Williams in the book under review assumes special relevance.

The State of Kerala, situated in southern India, is known for its unique development experience (Ramachandran 1996). The widespread presence of cooperatives in the State, across different sectors of its economy, has played a significant role in fostering this development experience. Cooperatives have played a major role in the social and economic transformation of Kerala (Ramakumar 2005). The book under review, *Building Alternatives: The Story of India's Oldest Construction Workers' Cooperative*, describes the story of one such cooperative – the Uralungal Labour Contract Cooperative Society (ULCCS), located in Vadakara in Kozhikode district of northern Kerala.

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| Versatility of thermoluminescence materials and radiation dosimetry – A review | Aarti Muley | Physics | Luminescence | 1522-7243 | YES |

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REVIEW

WILEY LUMINESCENCE
The Journal of Biological and Chemical Luminescence

# Versatility of thermoluminescence materials and radiation dosimetry – A review

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## Abstract

Thermoluminescence (TL) materials exhibit a wide range of applications in different areas such as personal dosimetry, environmental dosimetry, medical research etc. Doping of different rare earth impurities in different hosts is responsible for changing the properties of materials useful for various applications in different fields. These materials can be irradiated by different types of beams such as γ-rays, X-rays, electrons, neutrons etc. Various radiation regimes, as well as their dose–response range, play an important role in thermoluminescence dosimetry. Several TL materials, such as glass, microcrystalline, nanostructured inorganic materials and recently developed materials, are reviewed and described in this article.

KEYWORDS

dosimetry, glass, ionizing radiation, phosphors, thermoluminescence