extracts were measured in terms of zone of growth inhibition in mm. Minimum inhibitory concentrations were also determined for each mucus extracts.

The acetone extracts showed more antibacterial activity than the aqueous extract. The growth inhibition was higher against *Salmonella typhi* for both acetone and aqueous extracts. The result of the present study confirms the antimicrobial activity of the mucus and it contains a potential source of compounds against human pathogenic organisms. In future isolation and characterization of antimicrobial peptides will be of immense use in designing novel drugs against the infectious diseases caused by pathogens.

L 12

Characterization of dandruff causing *Malassezia furfur* and its control using plant extract

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Dandruff, a clinical condition caused by lipophilic dimorphic fungi, *Malassezia furfur* (*Pityrosporum ovale*) is of great cosmetic concern all over the world. The present study attempts to isolate *M. furfur* from dandruff affected individuals so as to characterize themmorphologically and biochemically and also to optimize physiochemical parameters for its growth. This was used to compare the effect of petroleum ether, acetone, ethanol and aqueous extract of 15 medicinal plants and commercially available antidandruff shampoos against *M.furfur*. Five plants were effective in controlling *M. furfur*. Use of plant extract suggests a more cost effective and natural remedy for dandruff as they impart no side effect.

L 13

A complimentary conservation strategy for coconut (*Cocos nucifera* L.) through pollen cryopreservation

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Conservation of coconut genetic diversity is very much essential for its efficient utilization in future breeding programmes in the present scenario of diminishing land availability and threat from various pests and diseases. Conservation can be achieved either through *ex situ* or *in situ* means. Conventional field gene banks can be supplemented through the development of *in vitro* methods like cryopreservation for long term conservation of coconut genetic resources in the form of coconut zygotic embryos and pollen. In the present study, the pollen cryopreservation protocol developed at CPCRI, Kasaragod was validated in a larger collection of coconut accessions (five talls and five dwarfs). No significant difference was noticed for viability as assessed by *in vitro* pollen germination among tall palms for cryo preserved pollen, but it varied in most of

the dwarf palms. The vigour of pollen as assessed by pollen tube length varied between tall dwarf palms. Using this protocol coconut pollen from two accessions (WCT and COD) was also cryopreserved in liquid nitrogen for period ranging from six months to four years to study the effect of storage duration on viability and fecundity of cryopreserved pollen. It was noticed that pollen vigour increased once coconut pollen was cryopreserved. For nut set studies, cryopreserved pollen from COD palm was artificially pollinated on WCT and *vice versa.* Normal seed set was observed in these crosses on artificial pollination with cryopreserved pollen. The efficacy of pollen cryopreservation protocol as a strategy for long term conservation of coconut genetic resources is highlighted.

L 14

Leaf anatomy and molecular characterization of healthy and root (wilt) affected coconut palms

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The present study involved the investigation on anatomical and molecular variation associated with healthy and root (wilt) affected coconut palms. Leaf samples from healthy and disease infected (RWD) palms of MGD, MOD, MYD, CGD, COD and WCT, during the month of May (2011) were collected from CPCRI Kasaragod and Neriyamangalam. Anatomical studies revealed significant differences in cuticle thickness, width of parenchyma cells, distance between lower epidermis and phloem etc., (at status level) and in width of large vascular bundles, thickness of small and large vascular bundles, area of sclerenchyma cells, distance between lower epidermis and phloem etc.,(cultivar level). Molecular characterization of younger leaves of root (wilt) affected palms were done using 10 polymorphic SSR primers. Maximum similarity was seen between MOD-IW (D), MGD-IW (H) (0.9166667) and MGD-IW (H), MYD-IW (D) (0.9166667). Minimum similarity was observed in CGD-IW (D), WCT-IW (H) (0.4000000) and CGD-IW (H), WCT-IW (H) (0.4000000). COD-IW (H), MYD-IW (D) and MYD-IW (H) grouped separately with a few palms showing intergroup affinity. CGD-IW (D) and CGD-IW (H) clustered with 100% similarity.

L 15

Response of coconut seedlings to elevated carbon dioxide (ECO_2) and high temperature

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The effect of climate change variables Elevated Carbon dioxide (ECO_2) and Elevated Temperature (ET) on the growth and development of coconut seedlings was studied in an Open Top Chamber