

Potentials of Milky mushroom in Crop diversification in Tropical Regions



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Calocybe indica P&C



❖ **Robust, Fleshy, Milky white grassland species**

Temperate to tropical - Saprophytic & sometimes mycorrhizal





The great Indian treat to the Mushroom Lovers !



Very close relative to
St. George mushroom

Calocybe gambosa Fr.Fr. Sing

Calocybe indica P & C – the Indian beauty!!

**APK2 – World’ s first
commercial variety
from TNAU**
(Krishnamoorthy *et al*, 1998)



Present focus

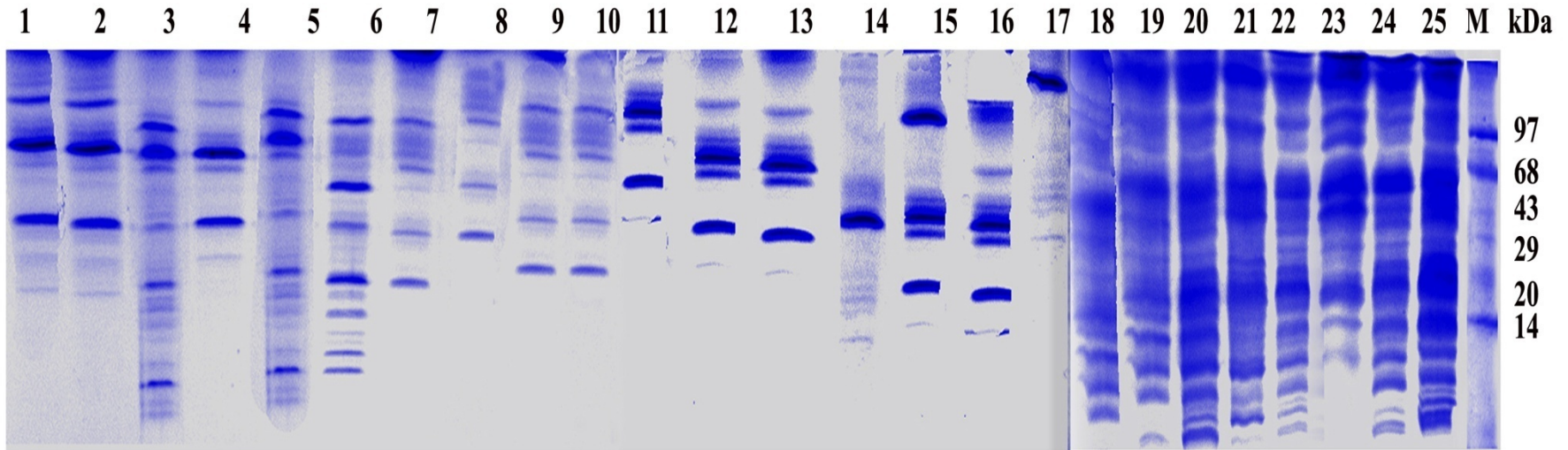
ICAR Adhoc Scheme – Development of milky mushroom hybrids

- ❖ **21 wild isolates collected**
- ❖ **5 deposited in the National repository at NRCM, Solan**
- ❖ **NCBI Gen accession No. AY636067**

Some of the wild collections



PROTEIN PROFILE OF WILD ISOLATES – SDS PAGE



Lane 1-15 : Wci 1-15
16 : **APK2**
17-25 : Wci 16-24
26 : **Marker**

DNA Sequencing studies are in Progress !!

Performance of Wild Isolates of *Calocybe* spp (F1)

	DFSR (%)	DFCR	NBF	NBH	Yield (g)	Av.Wt. (g)	BE (%)
WCi 2	15.0	23.3	105.7	15.4	835.9	54.4	167.0
WCi 6	15.0	22.6	106.5	15.7	909.8	58.1	182.0
WCi 19	14.0	22.1	115.4	16.9	934.4	62.7	186.9
APK 2	14.5	21.5	145.1	15.3	738.5	48.3	147.7



WCi 6 Uniform sporophores – look for the Pileus:Stipe ratio

Fig. 3. Yield performance of wild isolates (F2 generation)

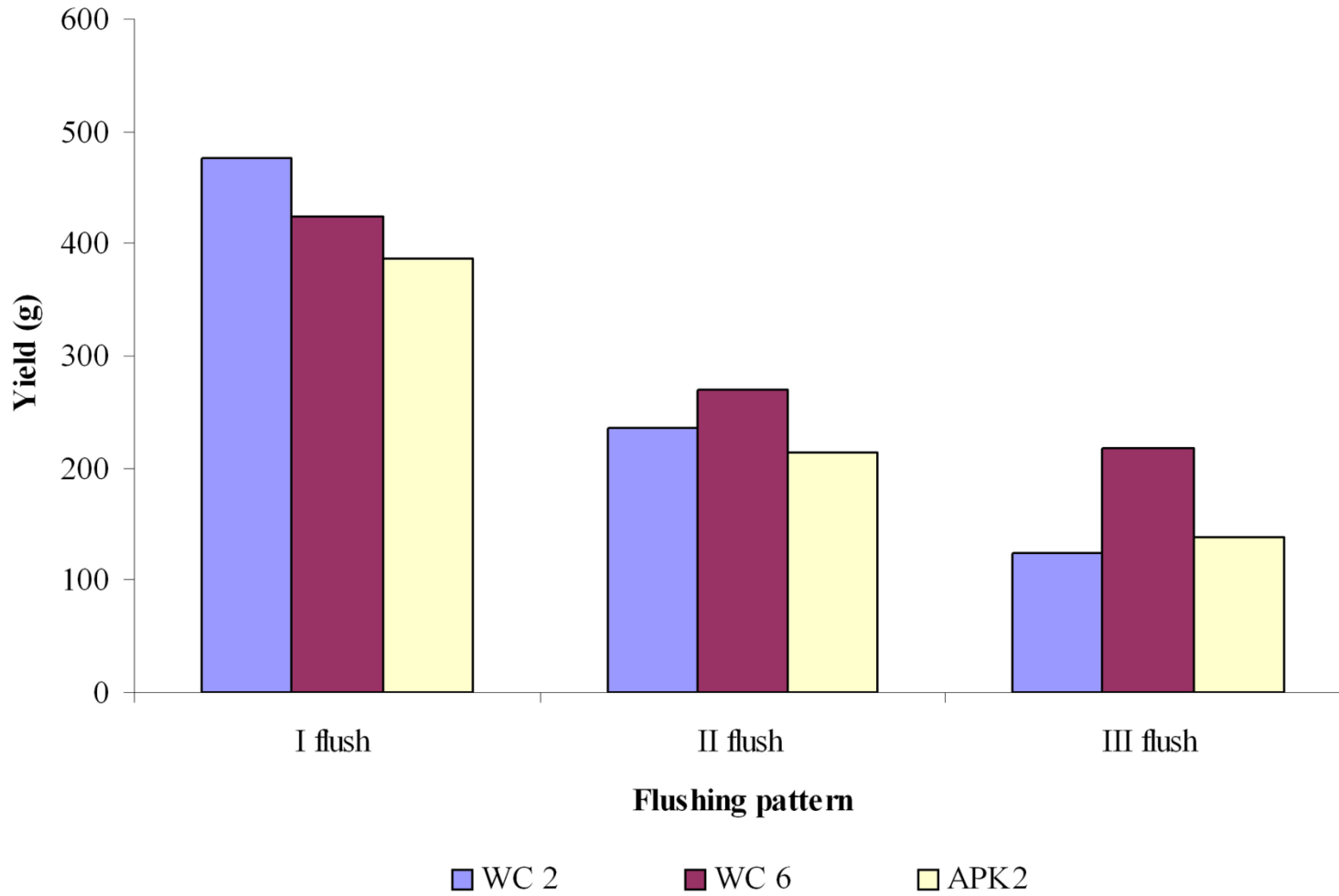
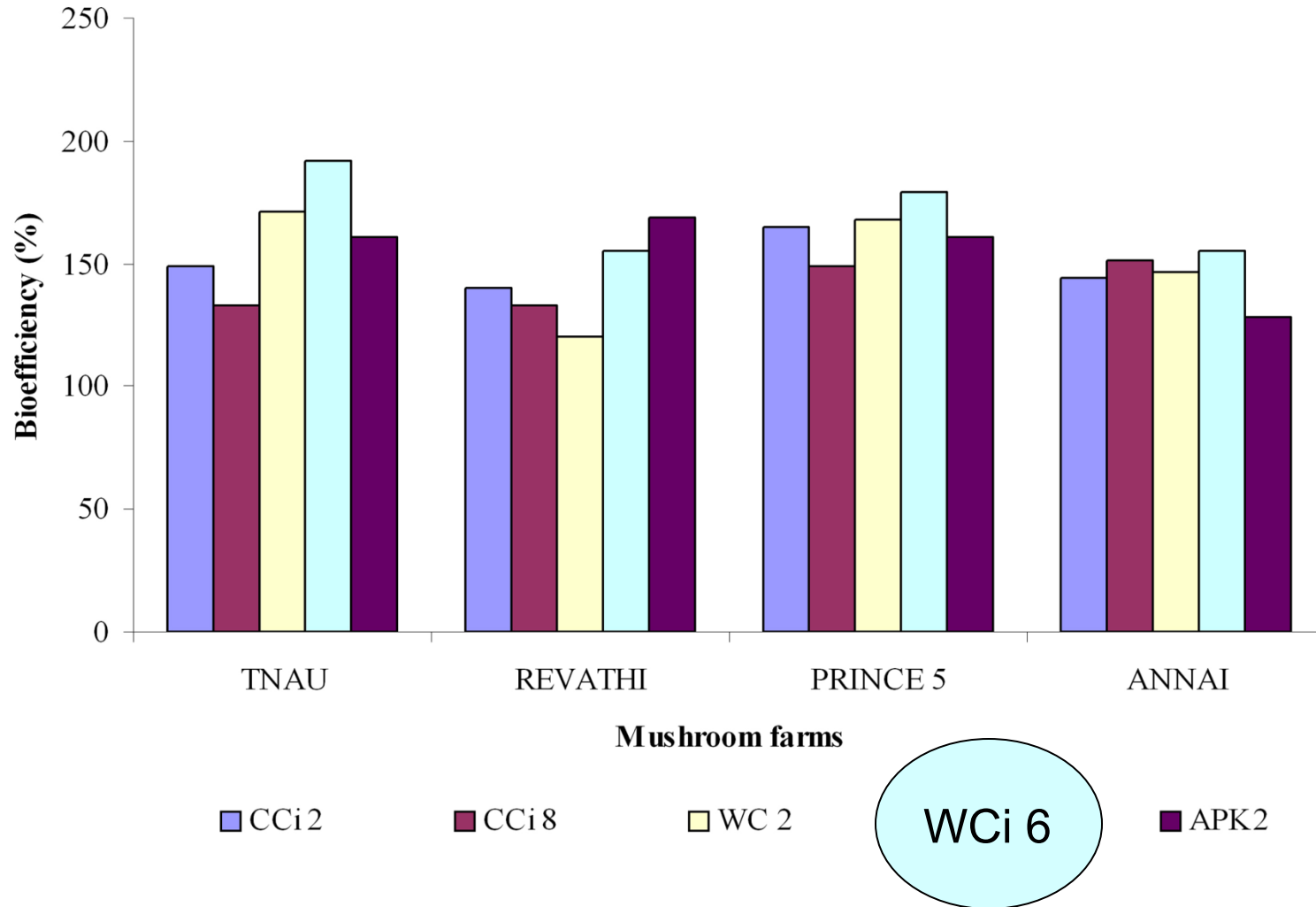


Fig. 4. Performance of selected wild and cultivated isolates of *C.indica* in TNAU and commercial farms



Milky mushroom spawn



Paddy straw Storage and Cutting



Straw Soaking and Boiling



Drying and Bed preparation



Spawn running



Checking for perfect spawn run



Cut the bed horizontally



Ready for casing



Beds after Casing



Beds arranged in HDP Silpauline Chamber



Growing Houses – Front and Side view



Spraying the Beds



Buds emerging on casing surface





....More buds



Beds with different stages of milky mushroom



Buds maturing

Get..set... ready...for harvest !



Robust! Fleshy !! Milky white !!!



Should we harvest today.. By now .?



Cleaning





Grading



Ready for packing

SHG and Young India in Action





Panoramic View of a Commercial Milky mushroom Farm

Technology Demonstrated



Milky Mushroom (APK 2)

Variety release –TNAU 1998



பரதப் பூக்கள்



காளான் வளர்ப்ப மையம்
தமிழ் நாடு வேளாண்மை பல்கலைக்கழகம்



Great opportunities ahead !!

France *Agaricus* spp

China *Volvariella* spp

Germany *Pleurotus* spp

What is left to India ?

It is only Milky mushroom !!

Changing Scenario of Indian Mushroom Industry

visible shift

- ❖ wide adaptability
- ❖ prolonged shelf life
- ❖ rapid growth on a variety of substrates
- ❖ increased productivity
- ❖ simple production technology
- ❖ substantial and sustainable yield
- ❖ attractive milky white colour
- ❖ the most preferable shape
- ❖ high B:C ratio

Any effort to conserve the germplasm of *Calocybe* Will revolutionize mushroom industry in the tropical and subtropical agroecosystem....

Researchable Issues

- ❖ presence of more fibre
- ❖ extra mushroom flavour
- ❖ the pileus : stipe ratio.
- ❖ number of pinheads Vs mushrooms harvested
- ❖ genetic behaviour and karyotype analysis
- ❖ studying the breeding system
- ❖ enzyme profiles - morphogenesis related
- ❖ protein profiles
- ❖ DNA sequencing to find out functional genes

Square Compact Bed – PS 1 strain



Circular Compact Bed – PS 1 Strain



Inter Cropping of Paddy Straw Mushroom- *Volvariella volvacea*

Intercropping of Paddy Straw Mushroom

வயல் வெளிகளில் ஊடுபயிர்- வைக்கோல் காளான்



We made it first in India

Mushroom Research Laboratory, TNAU, Coimbatore