BIOCHEMICAL STUDIES ON CYCLOSPORIN A PRODUCTION BY SOME LOCALLY ISOLATED *FUSARIUM SPECIES*

Thesis
Submitted by

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List of abbreviation

CyA:	Cyclosporin A.
Cy's:	Cyclosporins.
alIe:	L-allo-isoleucine.
CyASyn:	Cyclosporine A synthetase.
A-domain:	Amino acid activation domain.
T-domain:	Thiolation domain
C-domain:	Condensation domain.
N-MTase:	N-methyl transferase.
TCR:	T-cell receptors.
NF-AT:	Nuclear factor of activated T-cell.
IPB:	Immobilized cell-perfusion bioprocess.
HPLC:	High performance liquid chromatography.
TLC:	Thin layer chromatography.
ATCC:	American typing culture collection.
SSM:	Semi-synthetic medium.
PDA:	Potato dextrose agar.
SSF:	Solid state fermentation.
Smf:	Submerged fermentation.

Aim of work

Cyclosporins are a group of non-polar cyclic oligopeptide compounds having immunosuppressant activity. Cyclosporins are produced by fungal fermentation. Cyclosporins have been employed for several years to combat rejection of transplanted organs and tissues in human **(Casareto et al., 1997)**. Cyclosporin A is the major component produced by fermentation process in normal fermentation broth produced by *Tolypcladium inflatum* **(Agathos *et al*., 1986)**.

The present study aim to achieve the fermentation process for production of Cyclosporin A through selection of the highly producing strain of locally isolated *Fusarium species* and studying the effect of different parameters for physiological optimization , production using immobilization technique and production of CyA on semi-pilot scale using laboratory stirred fermentor.

Table (25): Semi-continuous production of CyA using different agar concentration by immobilized spores of *F.solani NRC105*

Cycle no.	Cycle 1			Cycle 2			Cycle 3		
Agar conc. (g%)	**Biomass yield (g/l)**	**Volumetric production of CyA (mg/l)**	**Specific production of CyA (mg/g biomass**	**Biomass yield (g/l)**	**Volumetric production of CyA (mg/l)**	**Specific production of CyA (mg/g biomass**	**Biomass yield (g/l)**	**Volumetric production of CyA (mg/l)**	**Specific production of CyA (mg/g biomass**
2	3.24	20.13	6.193	4.68	38.81	8.292	4.54	15.84	3.488
3	3.49	52.44	15.02	4.24	95.1	22.429	5.36	38.3	7.145
4	4.09	56.38	12.931	5.62	108.7	19.341	5.23	44.36	8.481
5	3.05	40.27	8.968	6.52	77.64	11.907	6.55	36.58	5.58
6	4.5	37.24	12.25	5.24	72.17	13.77	5.47	26.45	4.835

Cultivation condition: fermentation time 8 days, pH 6.3, shaken at 120 rpm at 27°C.