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Whole resting cells *vs.* Cell free extracts of *Candida parapsilosis* ATCC 7330 for the synthesis of gold nanoparticles

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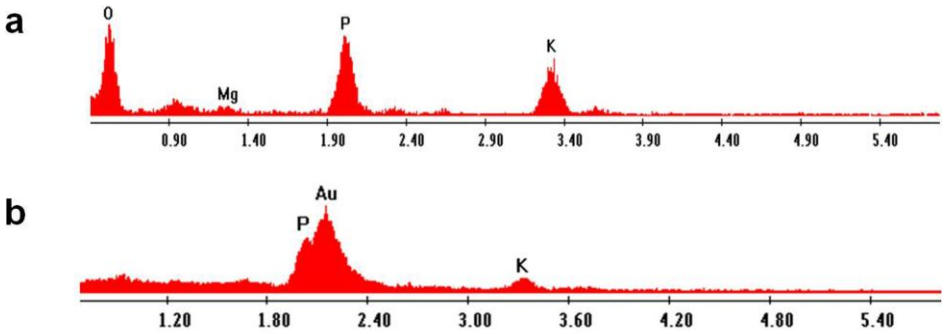

Fig. S1 Energy dispersive analysis of the yeast biomass (a) Control cells and (b) cells after the reaction with gold (III) chloride

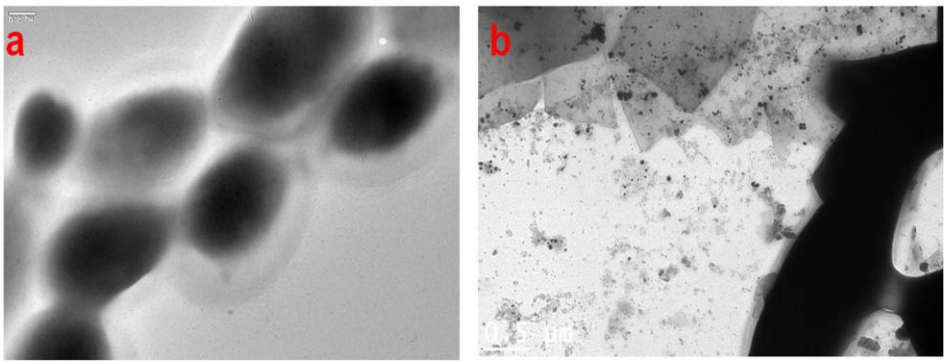

Fig. S2 Transmission electron micrographs (a) heat killed cells of *Candida parapsilosis* ATCC 7330 before and (b) heat killed cells after the reaction (right) with gold (III) chloride

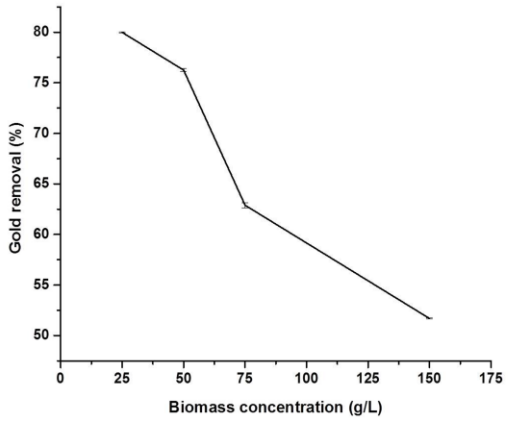

Fig. S3 Effect of biomass concentration of *Candida parapsilosis* ATCC 7330 on the uptake of gold (III) ions

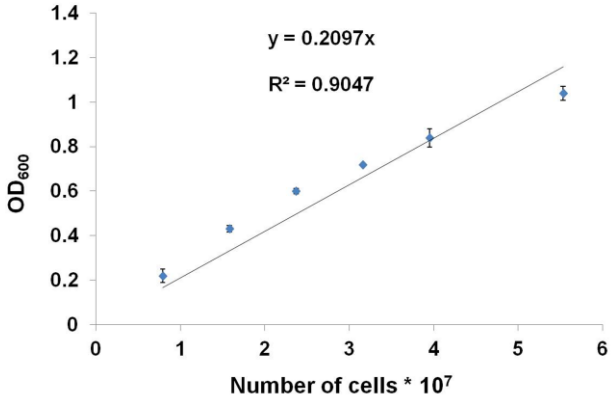

Fig. S4 Calibration of the optical density measurements to the number of yeast cells

Table S1. Estimation of the number of gold atoms accumulated in a single *Cp* cell

Entry	**Number of cells (x 10^9) [A]**	**Average gold uptake (%)**	**Gold atoms uptake by cell (x 10^{20}) [B]**	**Average uptake in single cell* (x 10^{10}) [B]/[A]**
1	1.8	29.44	1.033 ± 0.045	5.74
2	3.6	39.29	1.38 ± 0.007	3.83
3	5.4	43.37	1.52 ± 0.014	2.81
4	7.2	50.09	1.76 ± 0.013	2.44
5	9	51.13	1.79 ± 0.028	1.99
6	10.8	51.97	1.825 ± 0.007	1.69

Table S2. Extraction of the biosynthesized gold nanoparticles formed within the whole cells using ultrasonication

Method	Procedure	Follow-up
Ultrasonication	Ultrasonication for 20 mins (1 sec On/Off) 35 % amplitude	When centrifuged at low speed (~500 g), the nanoparticles was not observed in the supernatant fraction Final step: Filtration Identical samples filtered through Whatman filter and 0.2 μm syringe filter. The filtrate was colourless (no nanoparticles released).

Powder X-ray diffraction analysis

The above figure represents the diffraction peaks noticed at Bragg's angle of the gold nanoparticles as 111, 200, 220, 311, 222 lattice planes which manifests the face centered cubic (FCC) nature of the gold nanocrystals obtained.

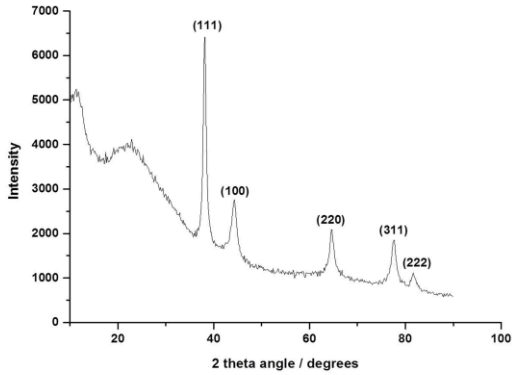

Fig. S5 Powder X-Ray diffraction of the gold nanoparticles biosynthesized

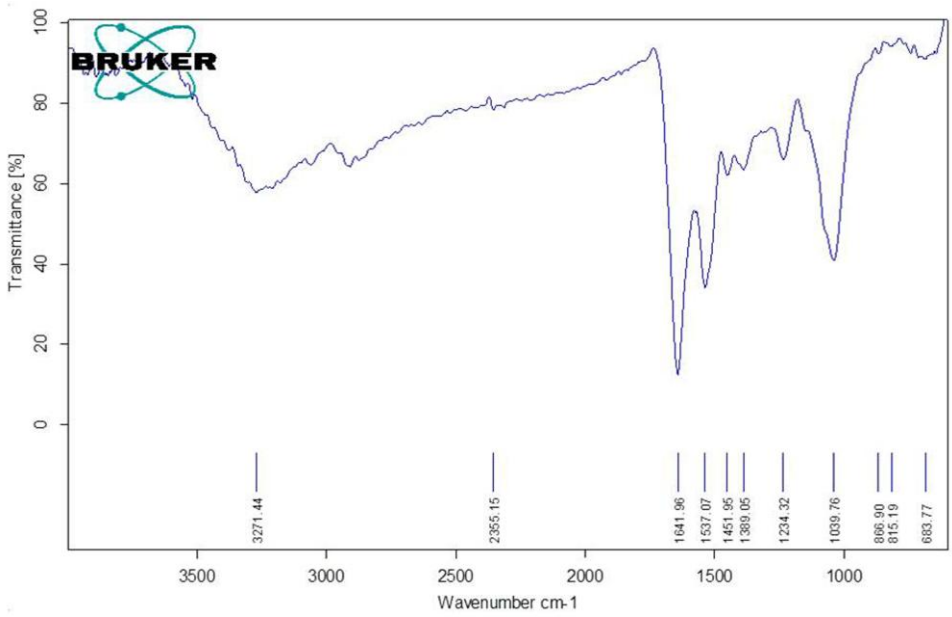

Fig. S6 Fourier Transform - Infra Red Spectroscopy analysis of the biosynthesized gold nanoparticles

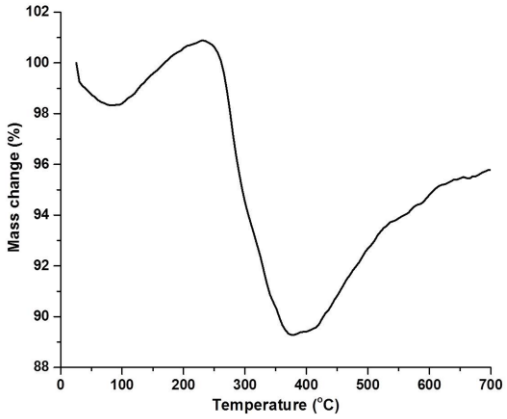

Fig. S7 Thermal gravimetric analysis of the lyophilized sample of bio-synthesized gold nanoparticles

SDS-PAGE analysis (12%)

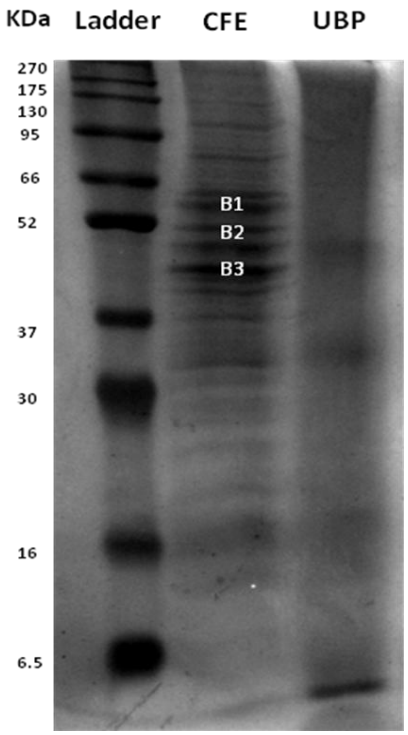

Fig. S8 SDS-PAGE (12%) analysis of the cell free extracts (CFE) and unbound proteins (UBP)

Entry	Average relative intensity of protein in UBP*
B1	0.13
B2	0.09
B3	0.15

* Cell free extract is the reference sample

Table.S3 Relative intensity of proteins in the unbound proteins fraction as compared to the cell free extract based on densitometry analysis using Image lab 3.0 software

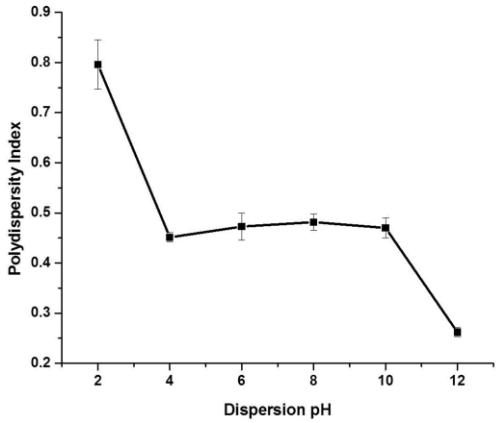

Fig. S9 Plot of polydispersity index as a function of pH of the dispersion medium

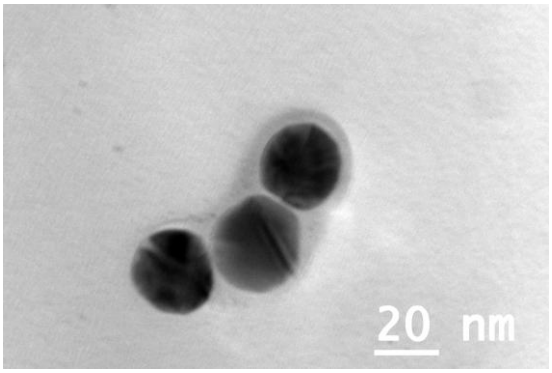

Fig. S10 Electron micrographs of the pH 12 dispersed gold nanoparticles after 20 months storage (Scale bar: 20nm, Magnification: 150Kx)

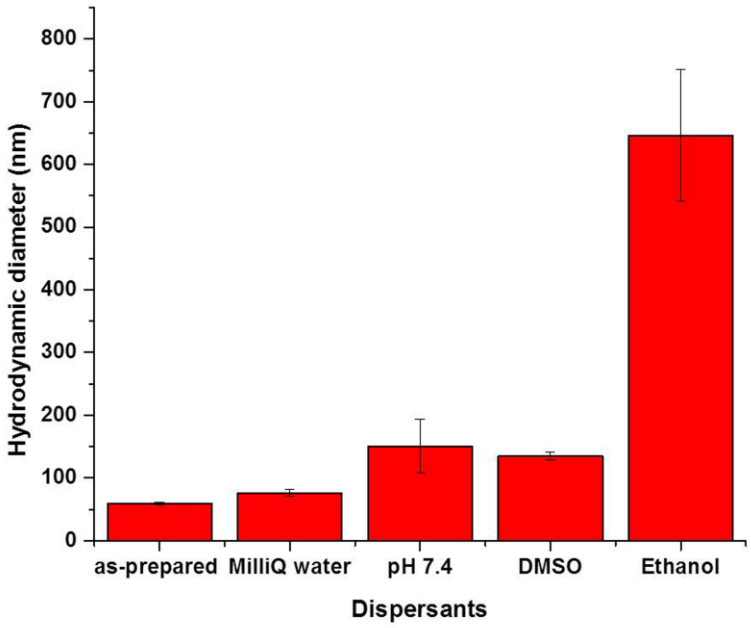

Fig. S11 Hydrodynamic diameter of the biosynthesized gold nanoparticles dispersed in various media

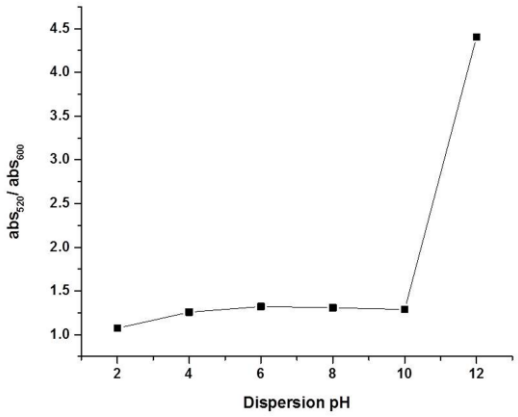

Fig. S12 Plot of stability parameter *vs* pH to examine the dispersion stability of the gold nanoparticles in different pH solutions

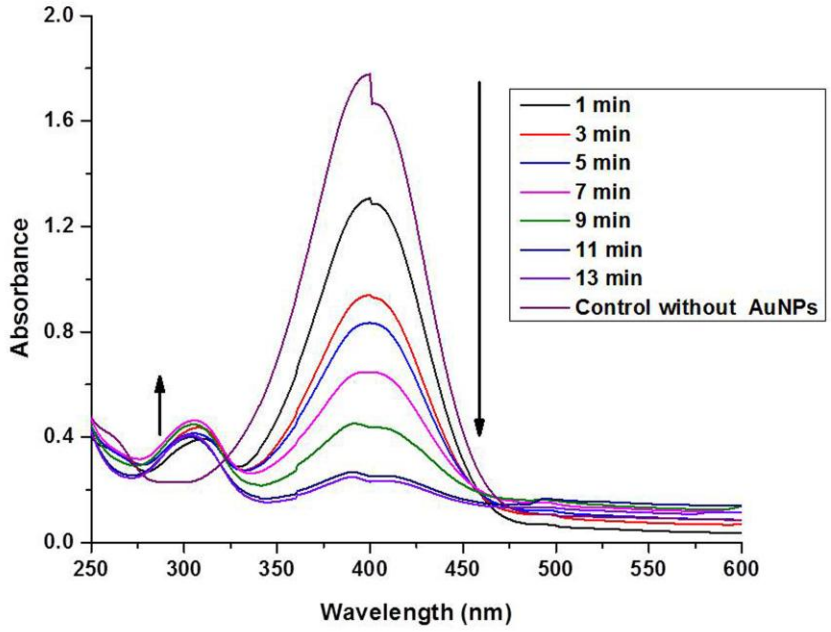

Fig. S13 Spectrophotometric monitoring of the sodium borohydride mediated reduction of 4-nitrophenol to 4-aminophenol using gold nanoparticles as a catalyst

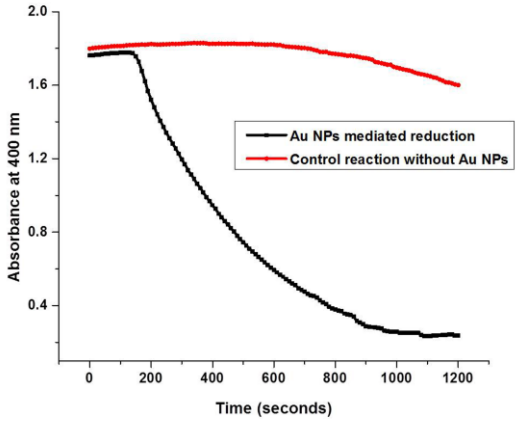

Fig. S14 Time course measurements of the catalytic reduction of 4-nitrophenol recorded at 400 nm