

**Exploring the Versatility of Dendrimer-Stabilized Silver Nanoparticles Platforms:
Synthesis, Characterization, and Protein Immobilization
for Enhanced Biosensing Applications**

Denys R. Oliveira ^{a,b}, Aldo J.G. Zarbin ^{b,*}, Dênio E. P. Souto ^{a,*}

^a Laboratório de Espectrometria, Sensores e Biosensores - Department of Chemistry,
Federal University of Paraná (UFPR), Curitiba, PR, 81530-900, Brazil.

^b Grupo de Química de Materiais - Departamento de Química- Department of Chemistry,
Federal University of Paraná (UFPR), Curitiba, PR, 81530-900, Brazil.

***Corresponding authors:**

e-mail address: denio.souto@ufpr.br; aldozarbin@ufpr.br .

1 STRUCTURAL AND MORPHOLOGICAL CHARACTERIZATION

1.1 Ultraviolet-Visible Spectroscopy (Uv-Vis)

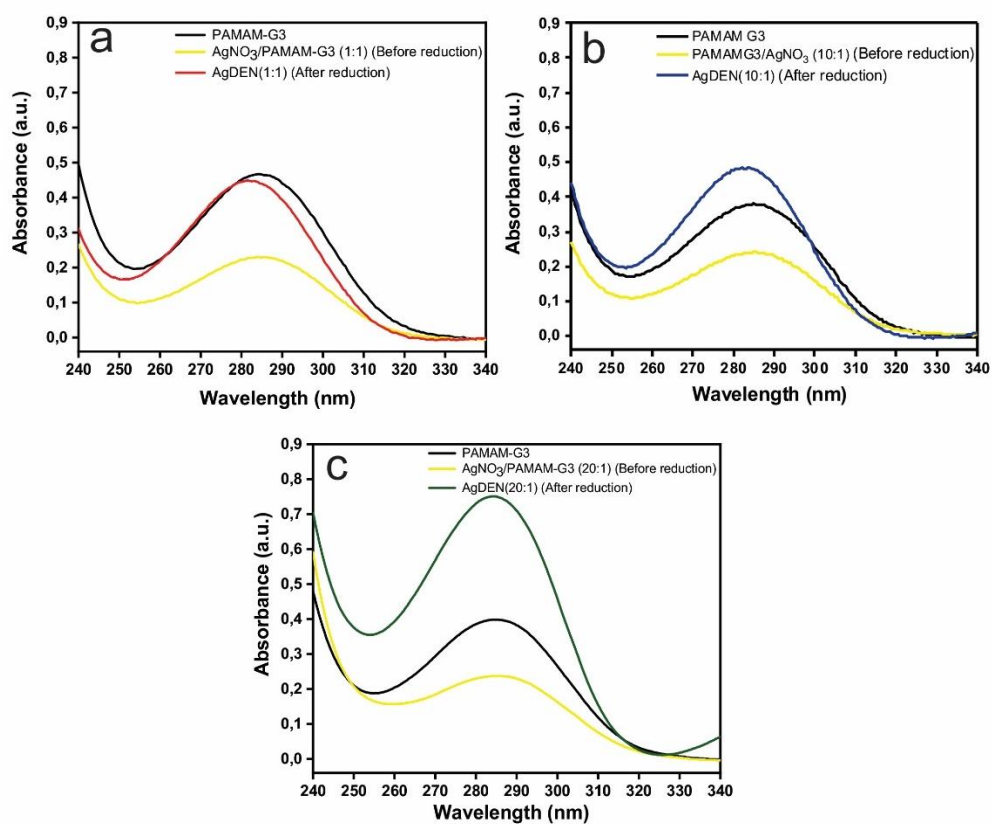


Figure S1 — Spectra UV-Vis in the region 240 a 340 nm : (a) AgDEN (1:1), (b) AgDEN (10:1) and (c) AgDEN (20:1).

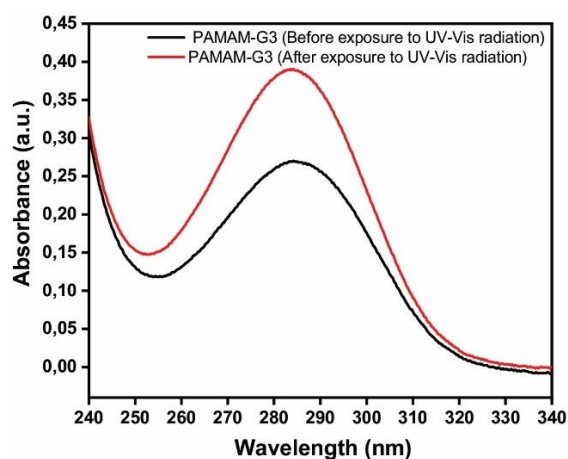


Figure S2 — UV-Vis spectra of PAMAM-G3 ($0,05 \text{ mmol L}^{-1}$) before and after exposure to UV radiation (8 W , $\lambda_{\text{max}} = 256 \text{ nm}$).

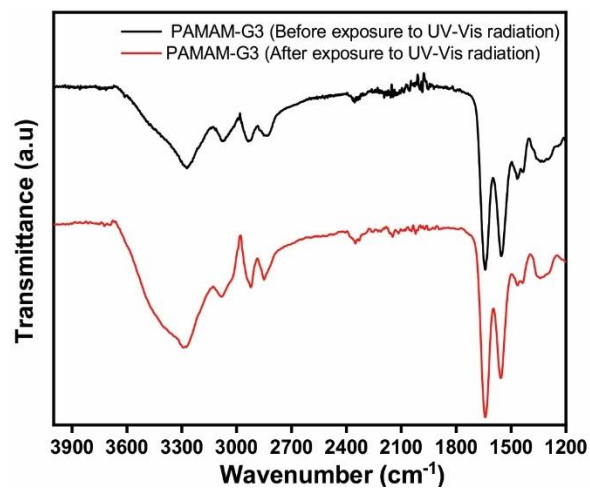


Figure S3 – ATR-FTIR Spectroscopy spectra of PAMAM-G3 (0,05 mmol L⁻¹) before and after exposure to UV radiation (8 W, $\lambda_{\text{max}} = 256$ nm).

2 SURFACE PLASMON RESONANCE (SPR)

2.1 Evaluation in situ via SPR of the interaction of PAMAM-G3, AgNPs and AgDENs on the metallic surface (gold) for biosensing proposal

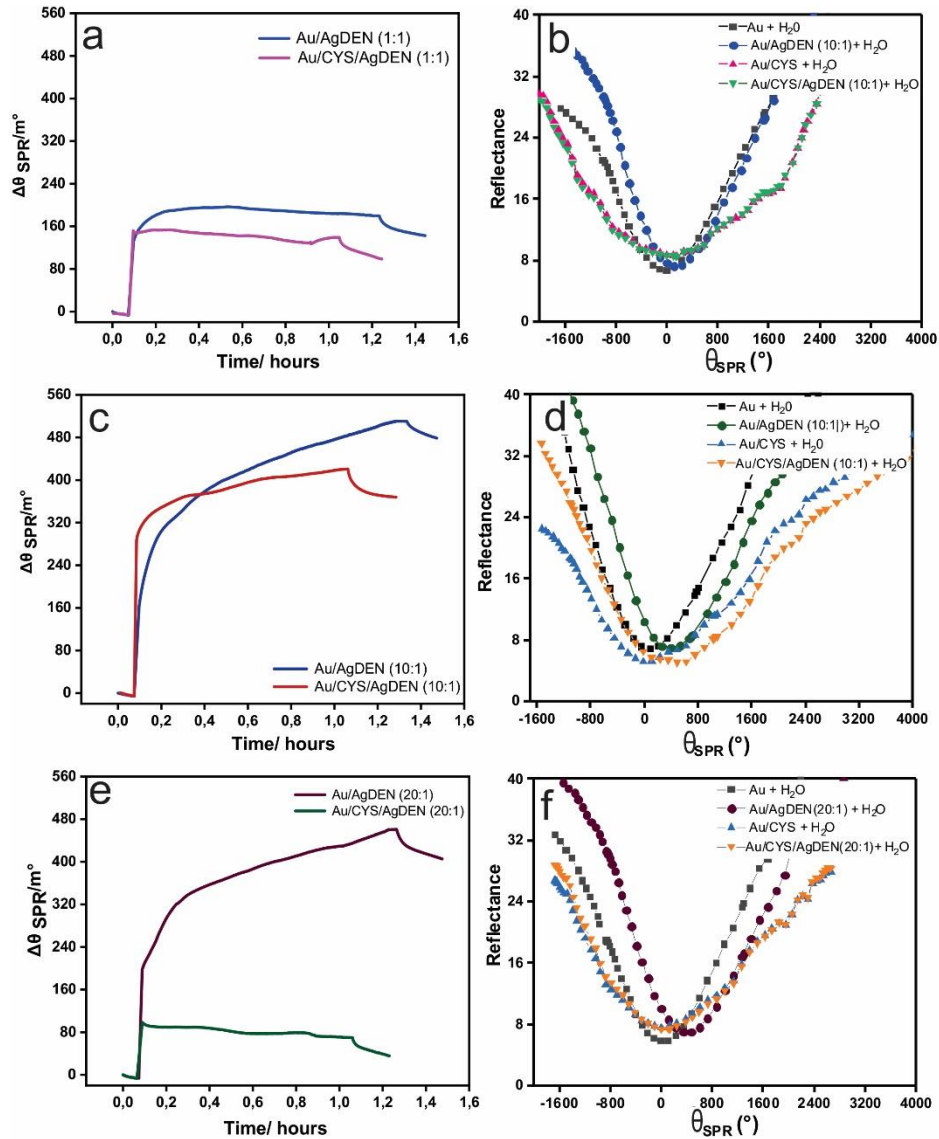


Figure S4 – Sensorgrams and SPR curves of reflectance obtained in real-time show the interaction between the AgDENs and the modified and unmodified gold surface with CYS-SAM. The sensorgrams present their typical phases: the baseline obtained with ultrapure water, the binding phase of the AgDENs, the stationary phase, and the washing phase with ultrapure water: (a) and (b) AgDEN (1:1), (c) and (d) AgDEN (10:1), (e) and (f) AgDEN (20:1).

2.2 Immobilizing the Hsc 70 and CALB L on the platform Au/AgDENs for biosensing proposal

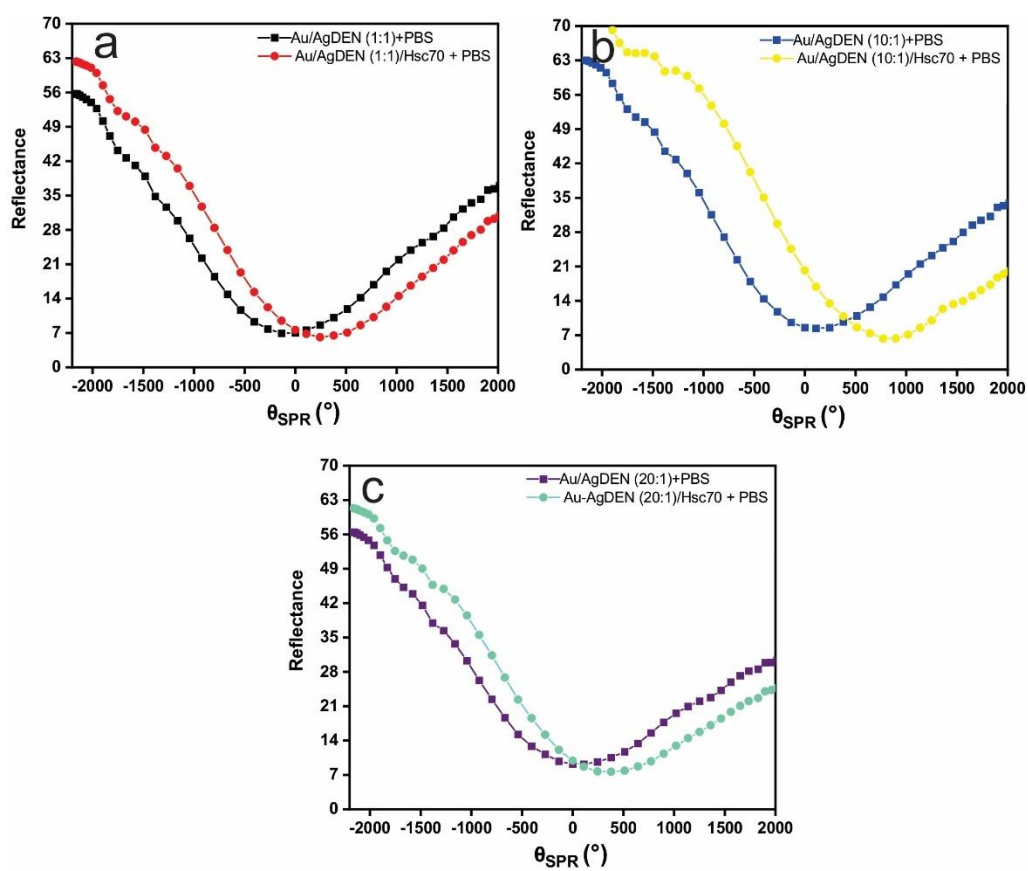


Figure S5 - SPR curves of reflectance obtained in real-time. The figure shows the difference between the reflectance curves before and after immobilization of the Hsc70 protein: (a) AgDEN (1:1), (b) AgDEN (10:1), and (c) AgDEN (20:1).

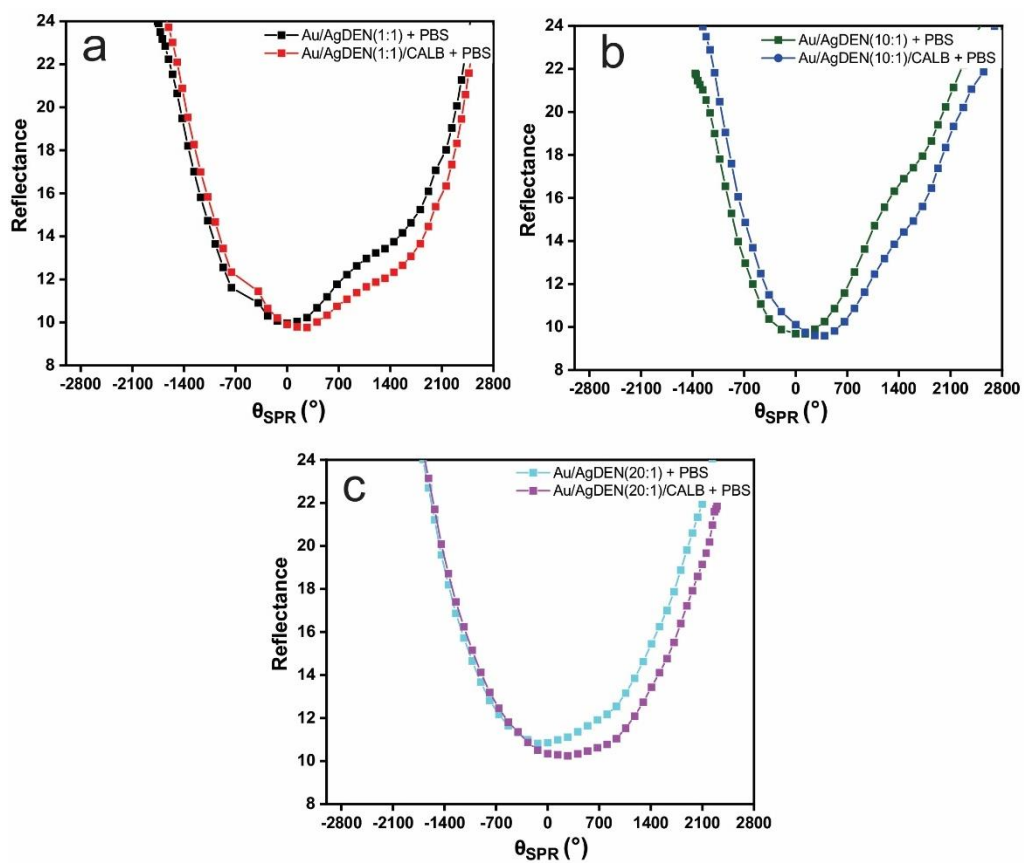


Figure S6 - SPR curves of reflectance obtained in real-time. The figure shows the difference between the reflectance curves before and after immobilization of the CALB: (a) AgDEN (1:1), (b) AgDEN (10:1), and (c) AgDEN (20:1).