

圖 4-1 水溶液中反應硫化鋅奈米顆粒之 TEM 圖，反應條件為

200°C，6 小時

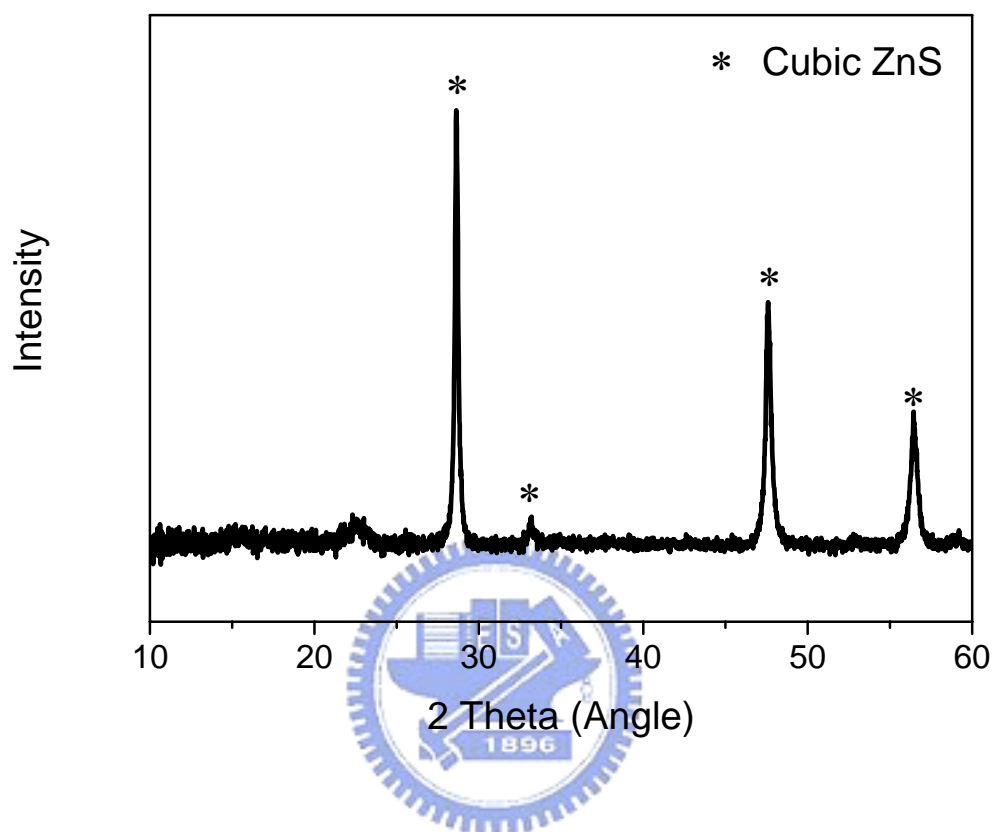
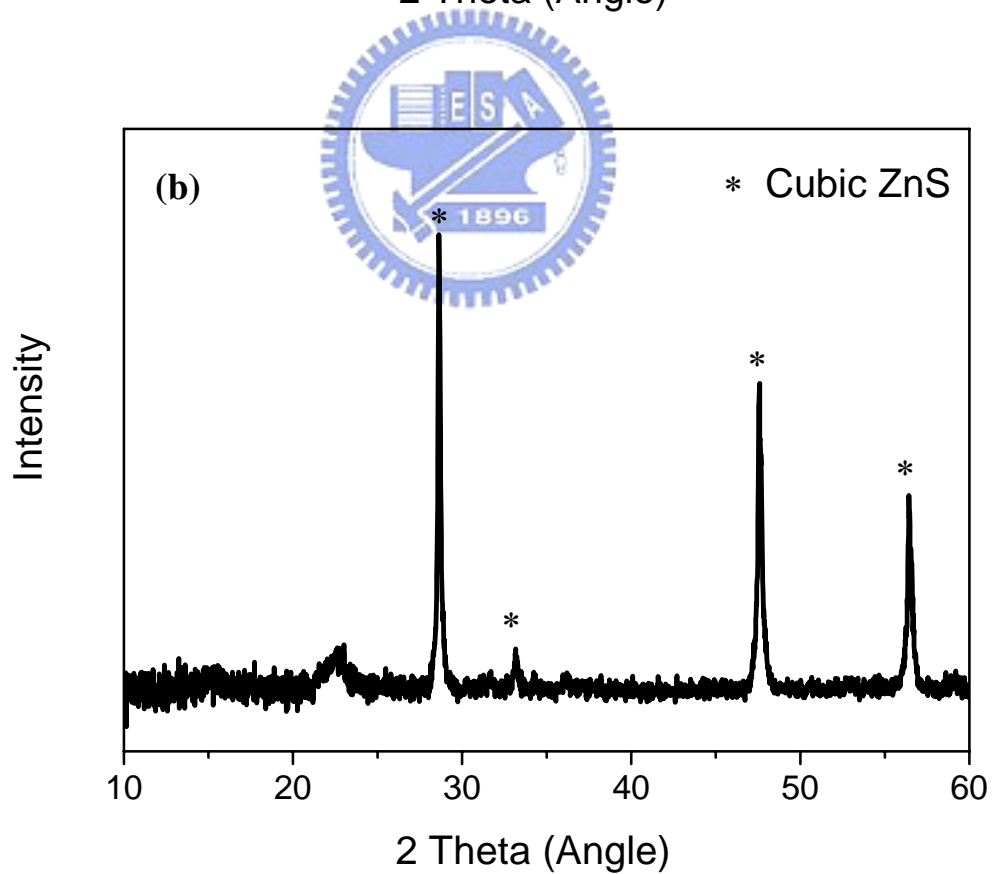
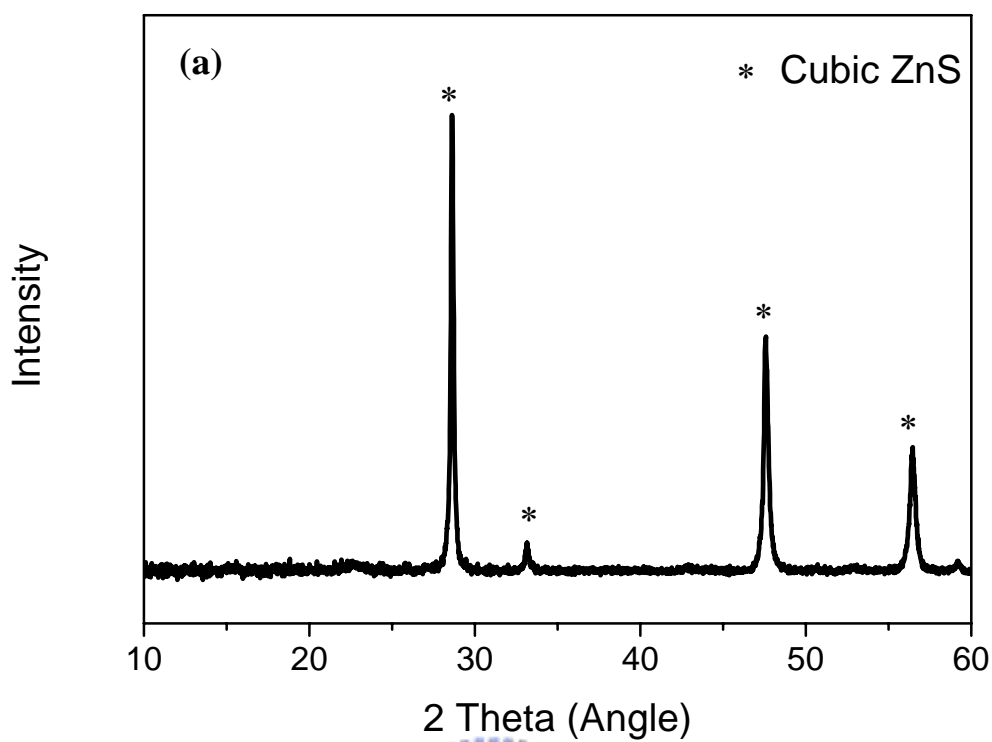


圖 4-2 水溶液中反應硫化鋅奈米顆粒之 XRD 圖，反應條件為 200

°C，6 小時



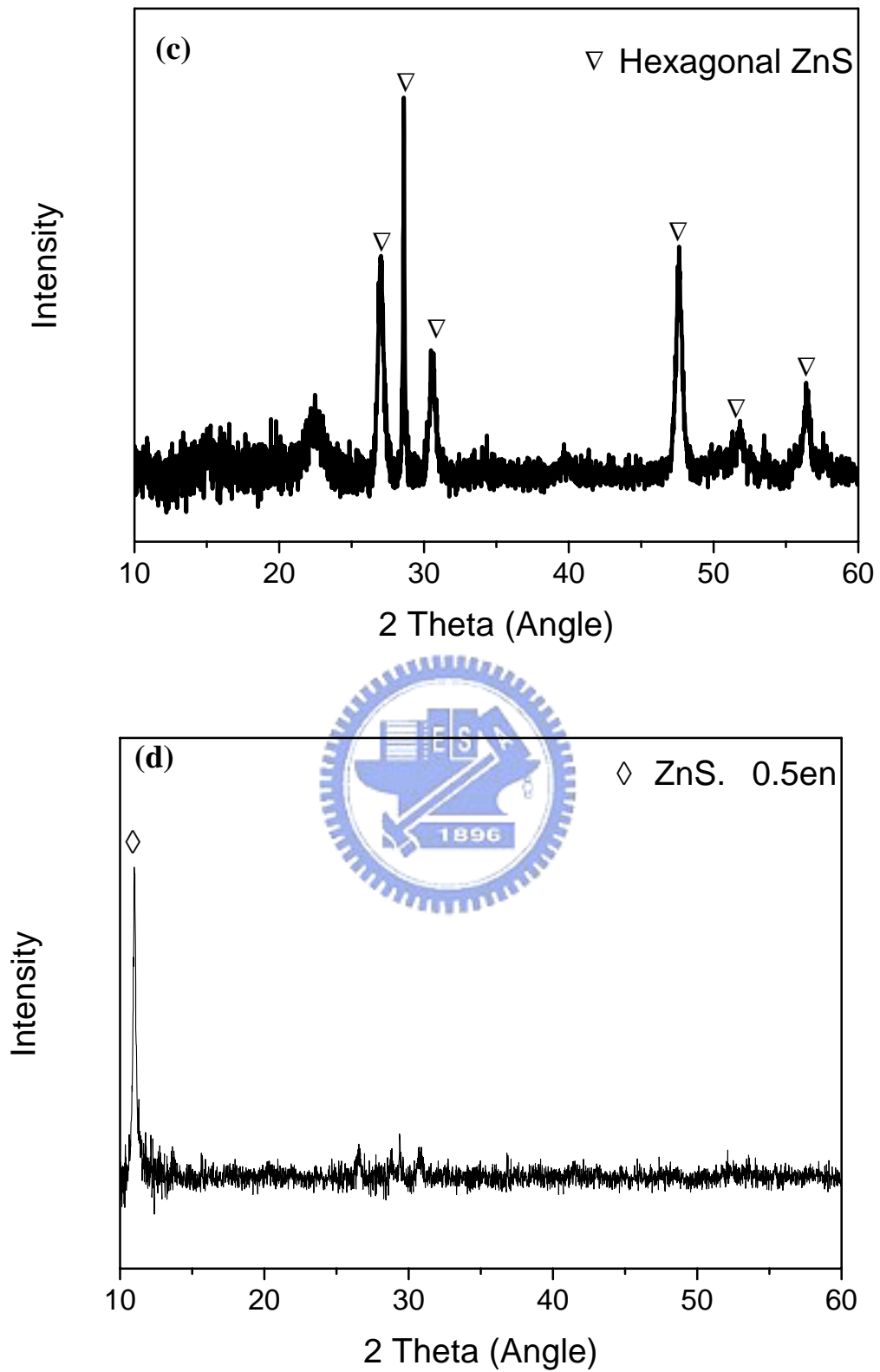


圖 4-3 在不同濃度之乙二胺溶劑中反應之硫化鋅產物之 XRD 圖

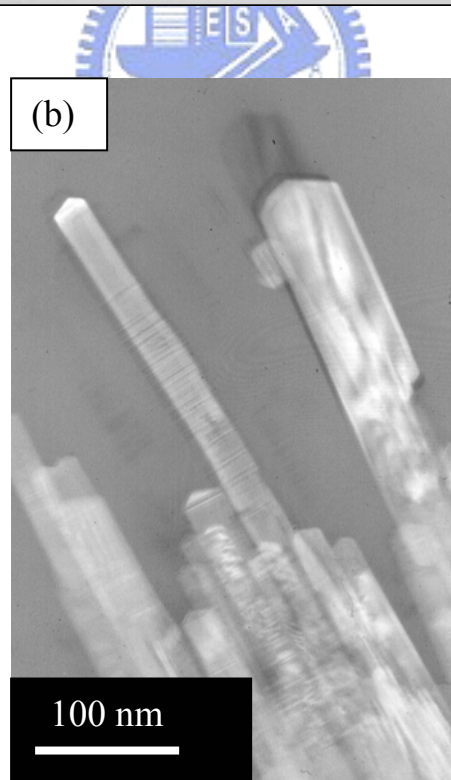
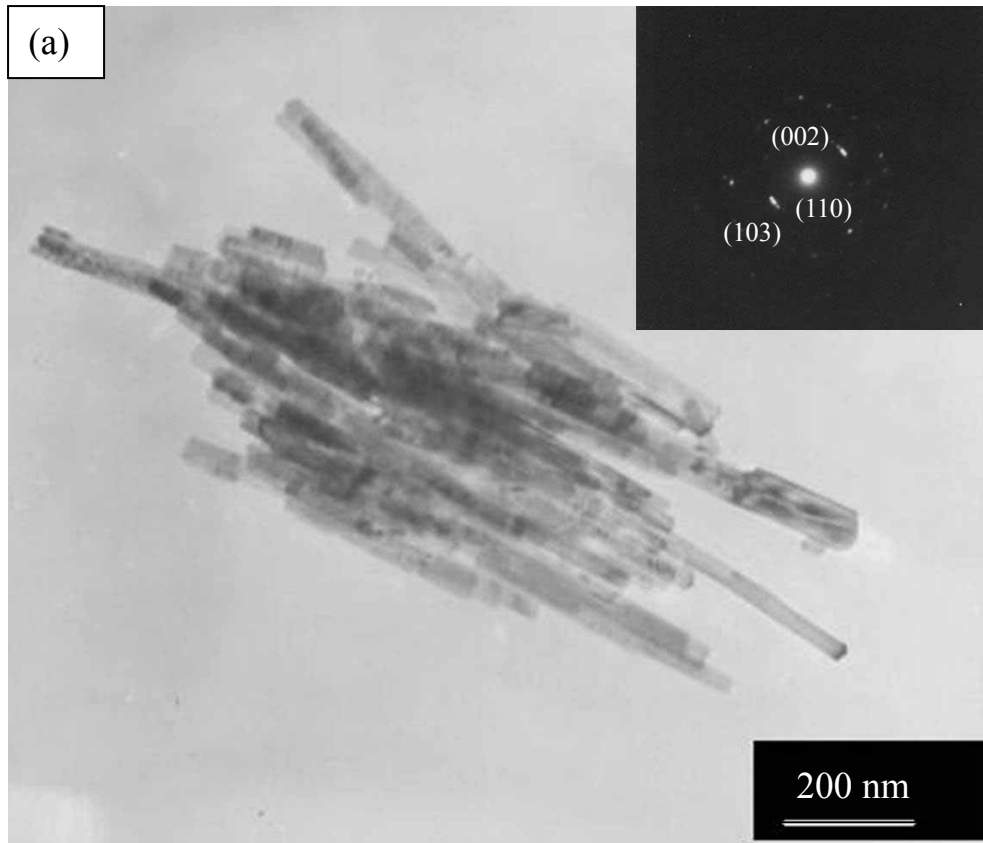


圖 4-4 乙二胺濃度 67 % 下之硫化鋅產物

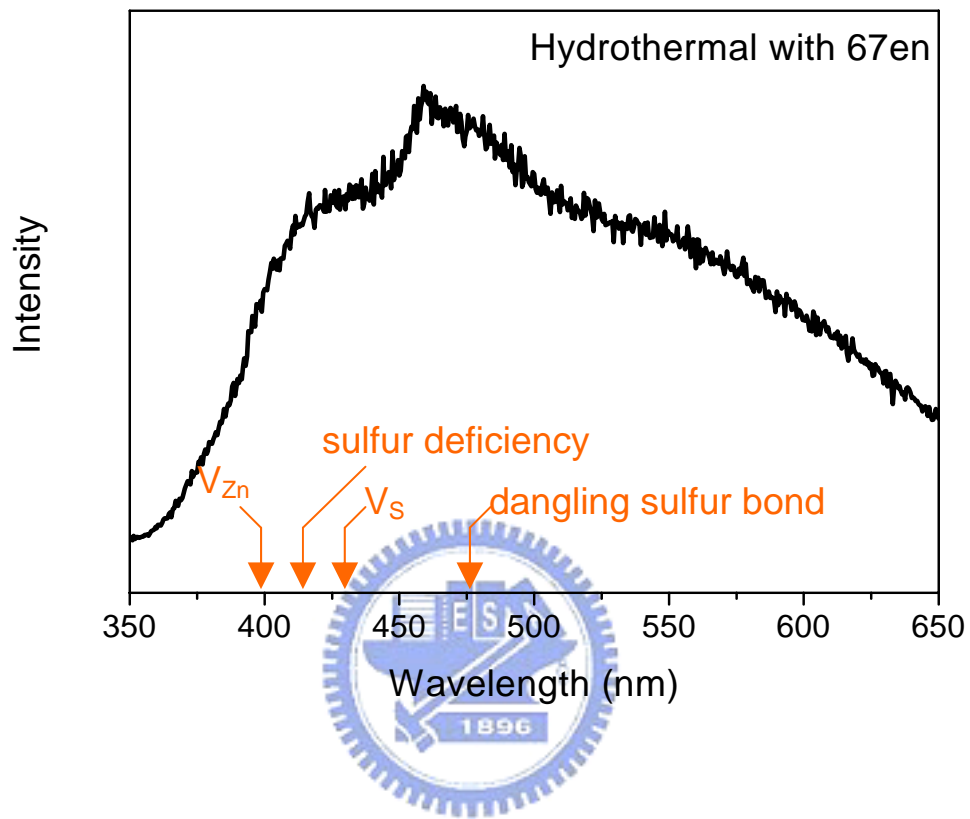


圖 4-5 硫化鋅奈米棒之 PL 圖

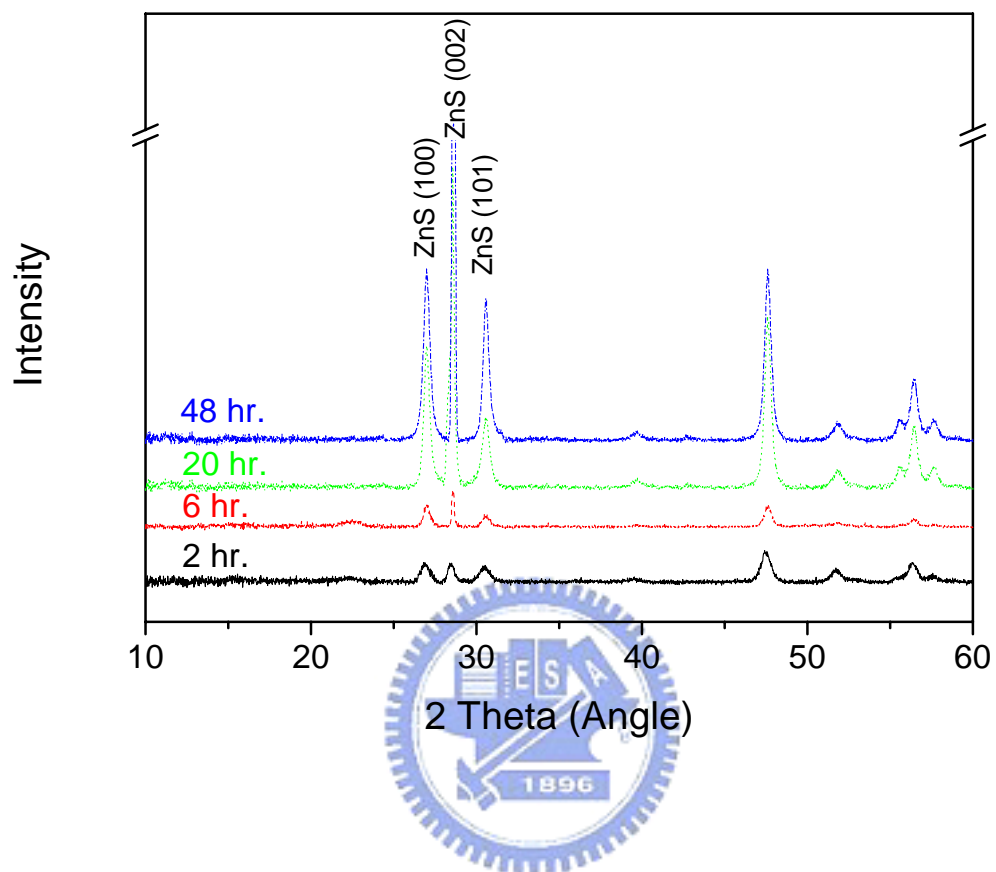


圖 4-6 不同反應時間之硫化鋅產物之 XRD 圖

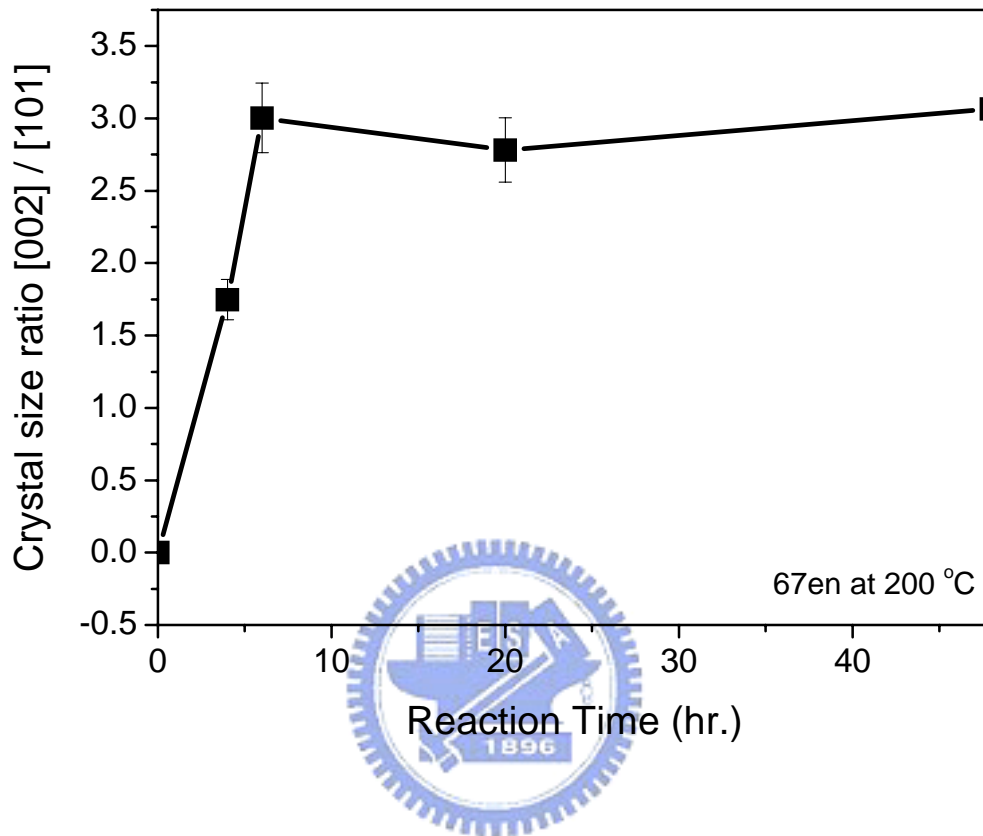


圖 4-7 硫化鋅晶體各方向長度隨反應時間作圖

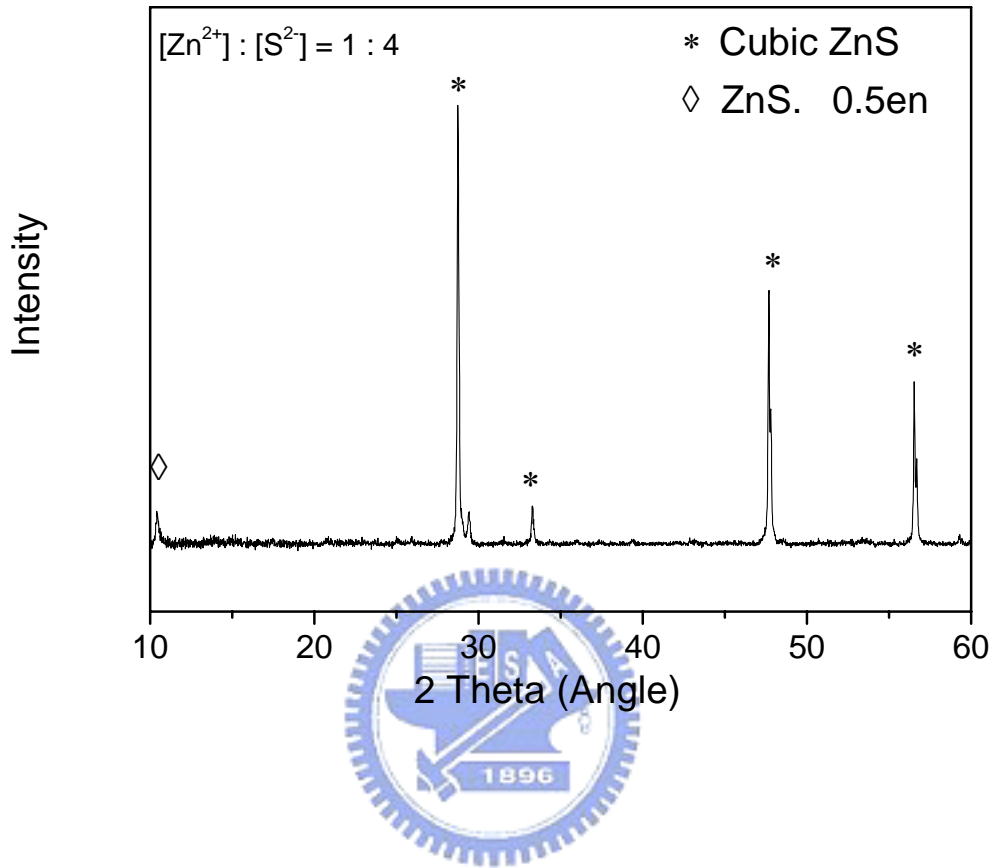


圖 4-8 [Zn²⁺]:[S²⁻] = 1 : 4 之硫化鋅產物之XRD繞射圖

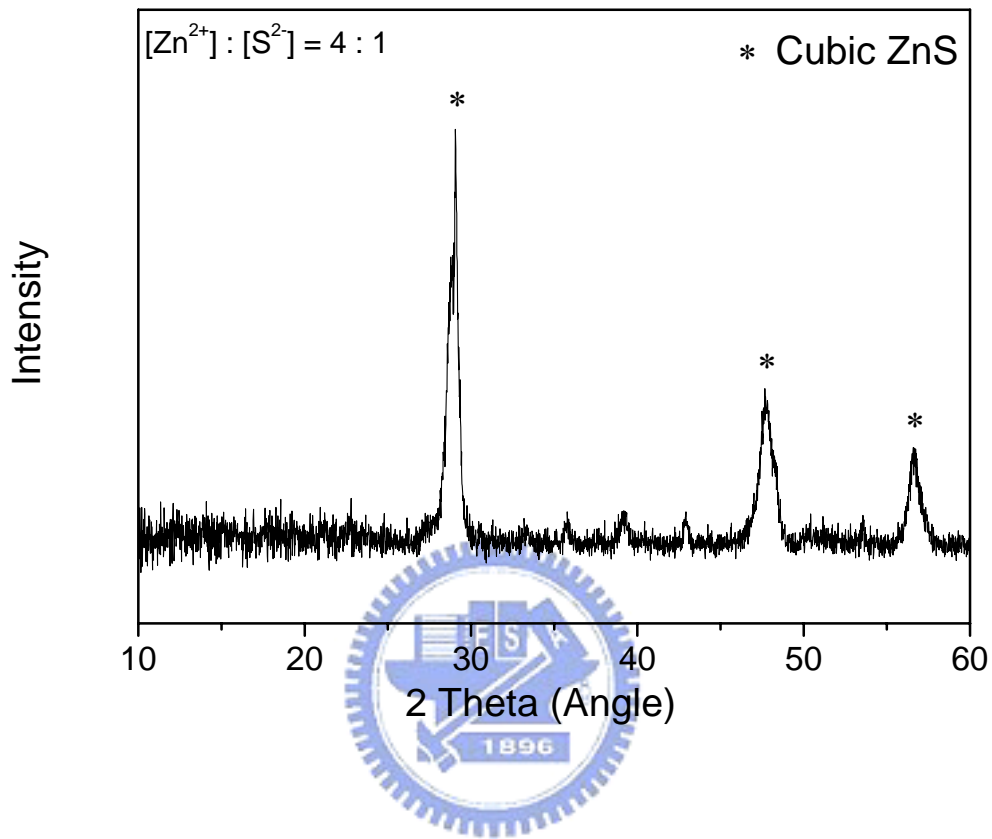


圖 4-9 [Zn²⁺]:[S²⁻] = 4 : 1 之硫化鋅產物之XRD繞射圖

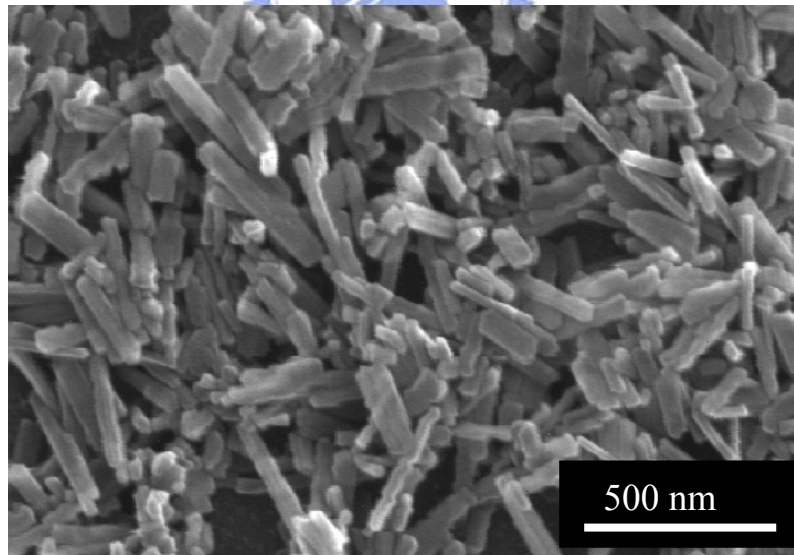
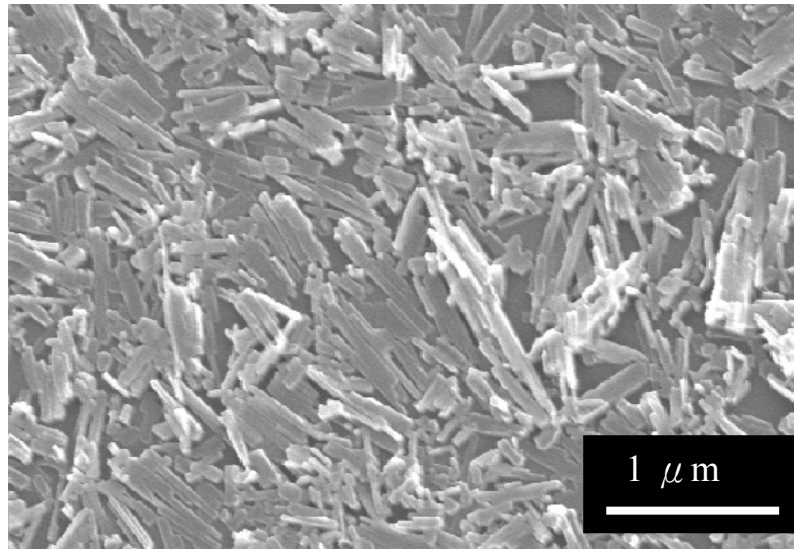


圖 4-10 以水熱法成長於矽基板上之硫化鋅奈米棒

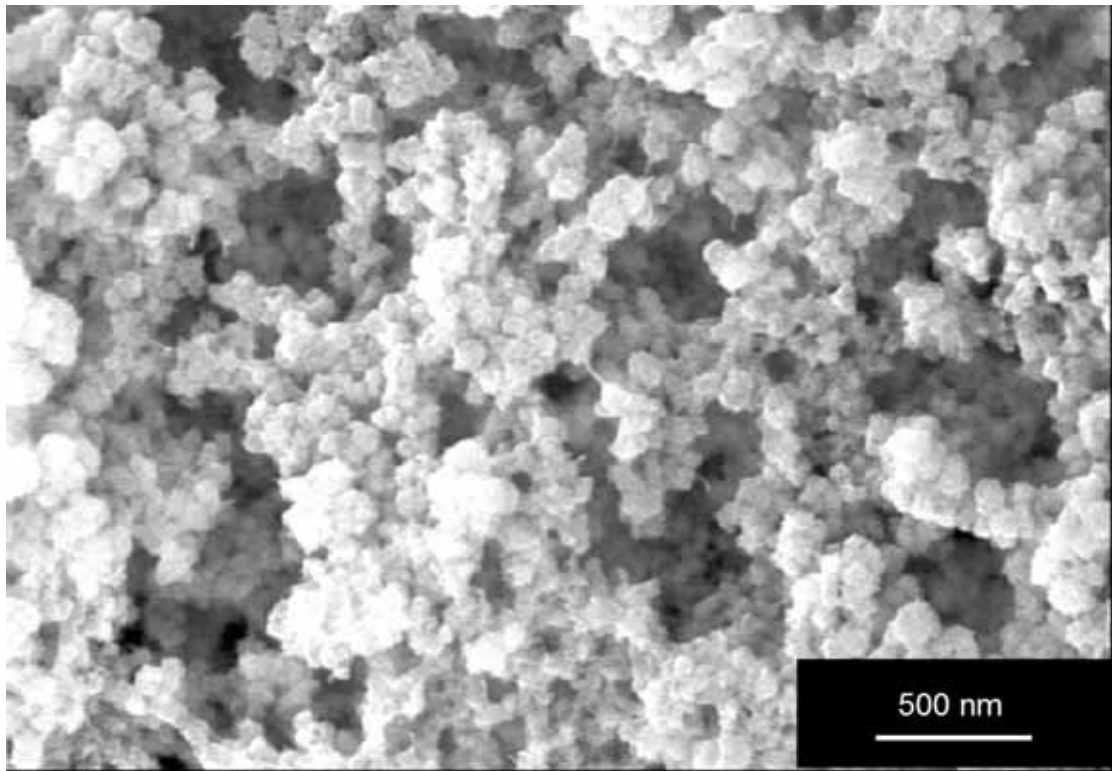


圖 4-11 表面沉積硫化鋅之砂基板

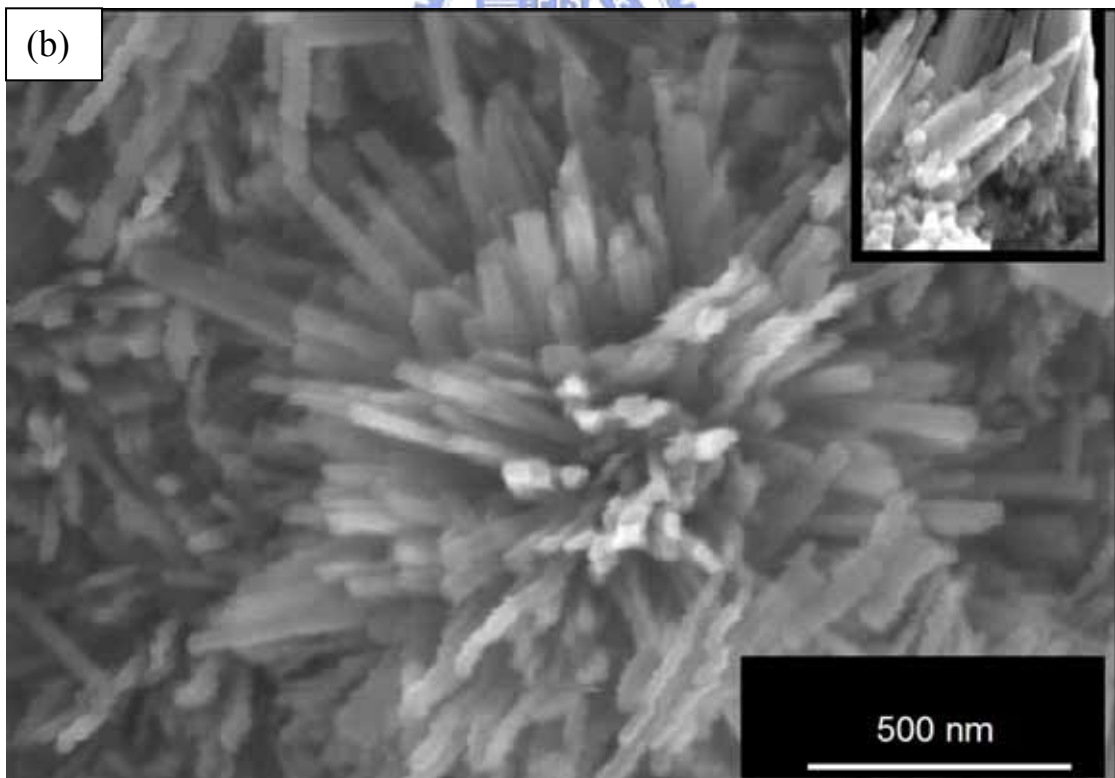
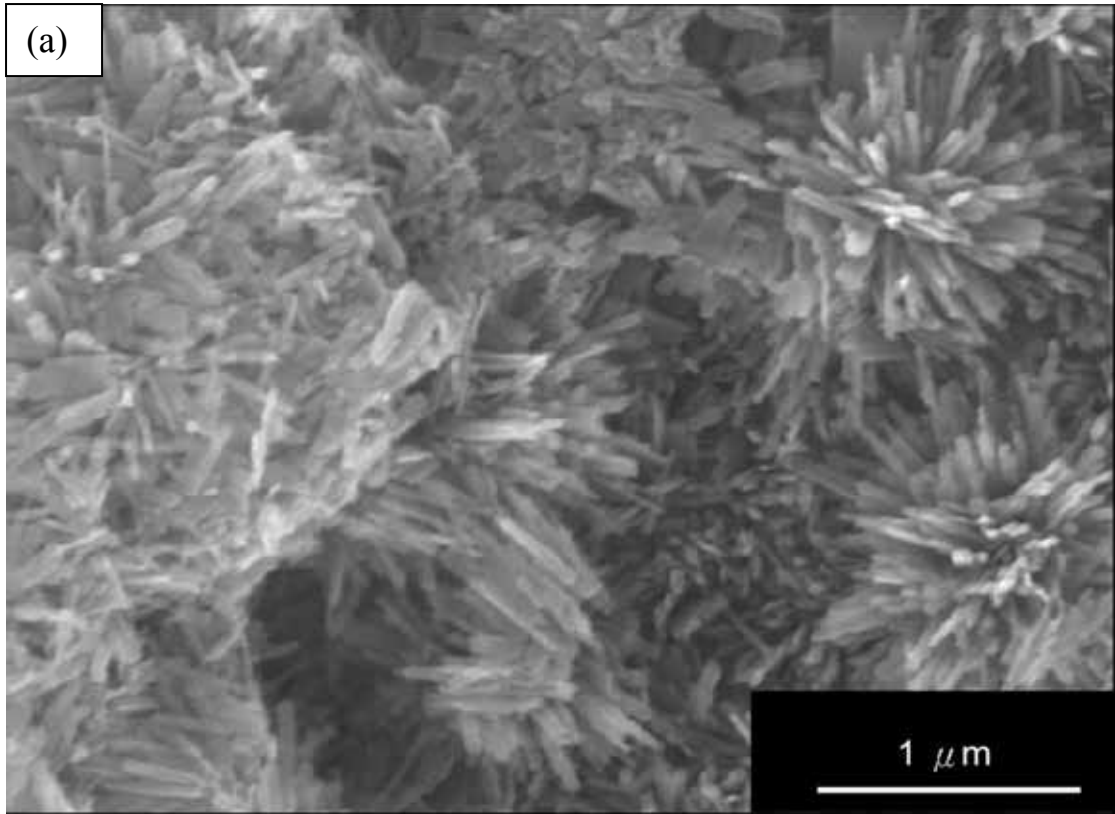


圖 4-12 成長於硫化鋅顆粒上之硫化鋅奈米棒

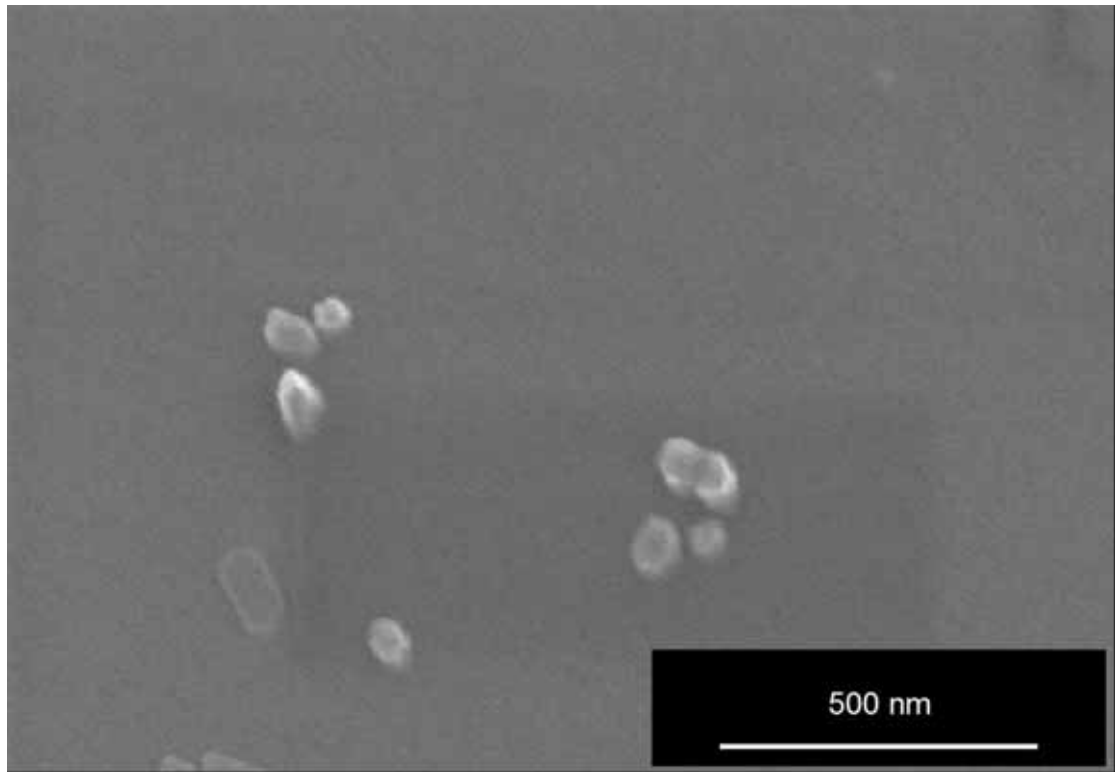


圖 4-13 旋鍍於基板上之硫化鋅奈米顆粒

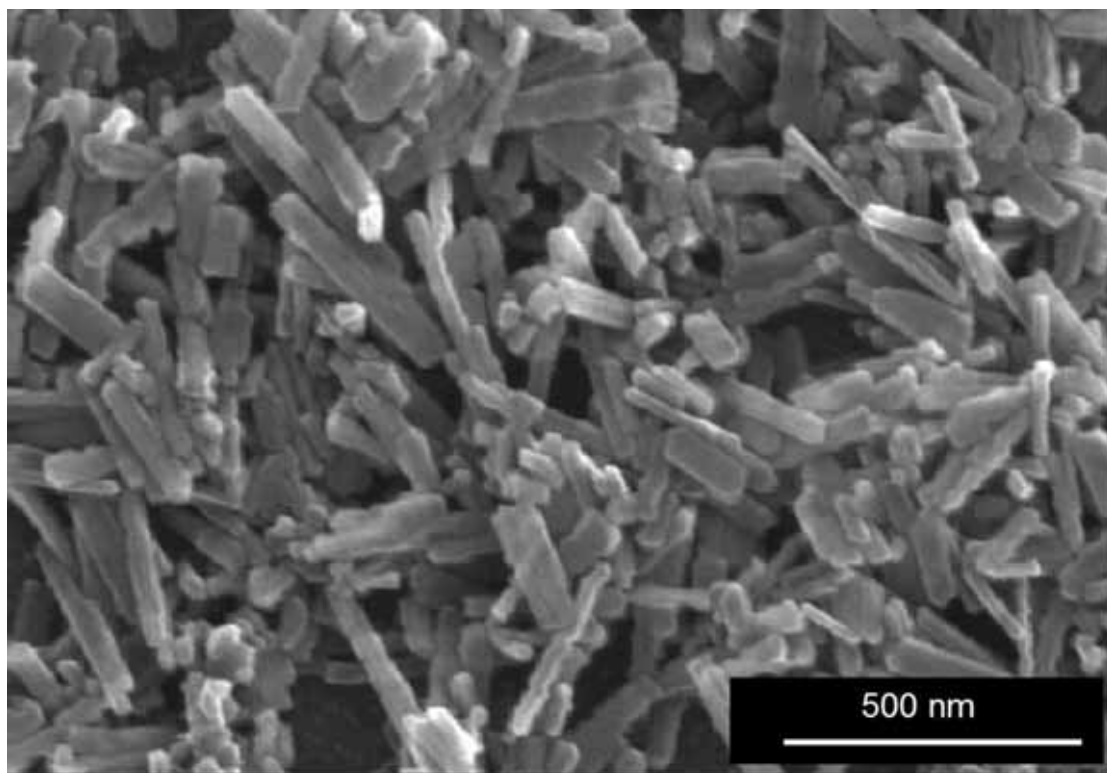


圖 4-14 基板上之硫化鋅奈米棒

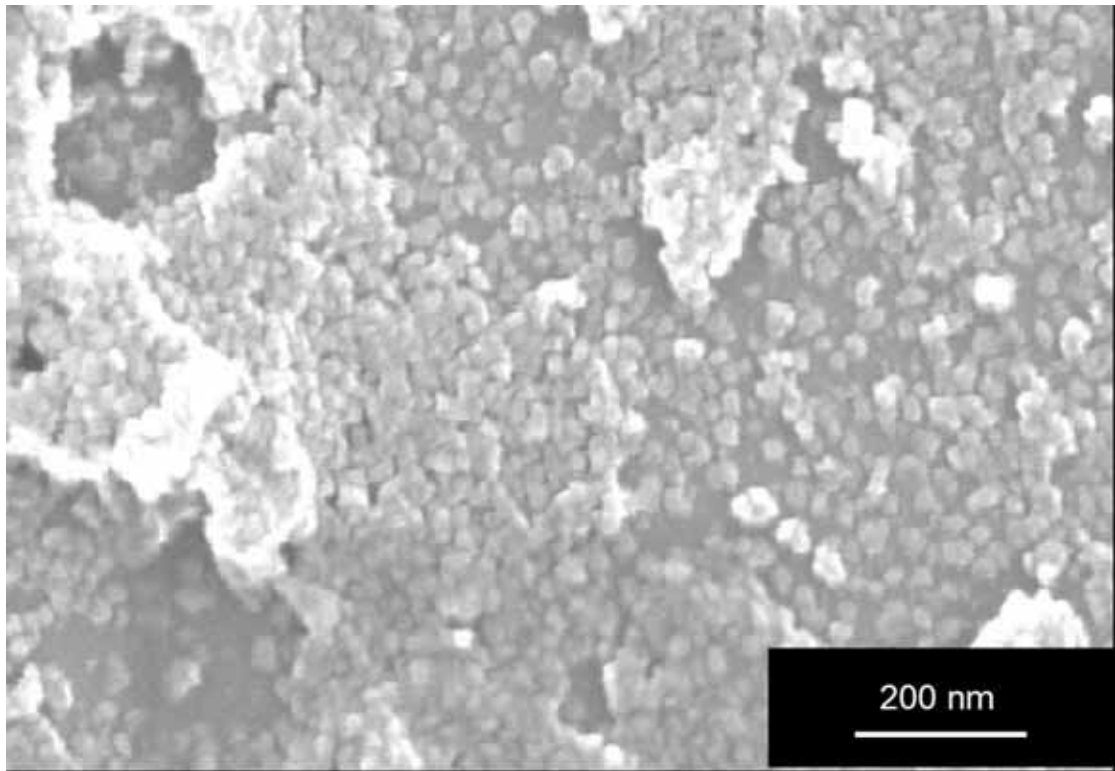


圖 4-15 未添加乙二胺之溶液共沉法合成之硫化鋅

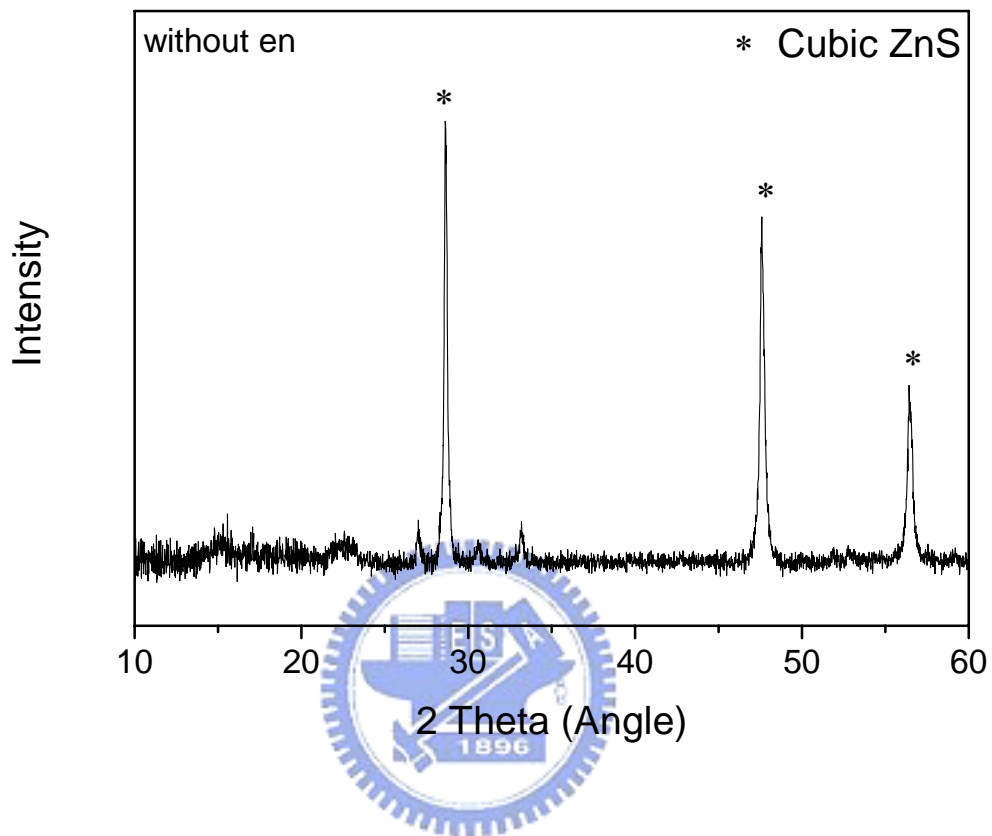
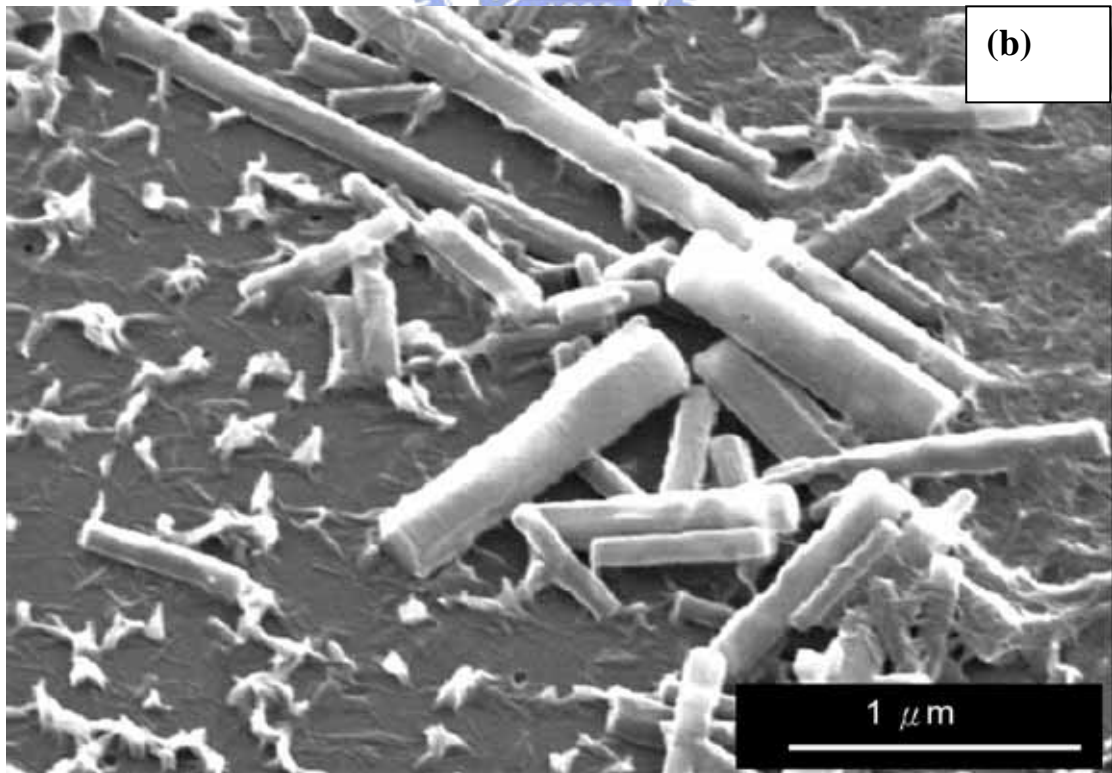
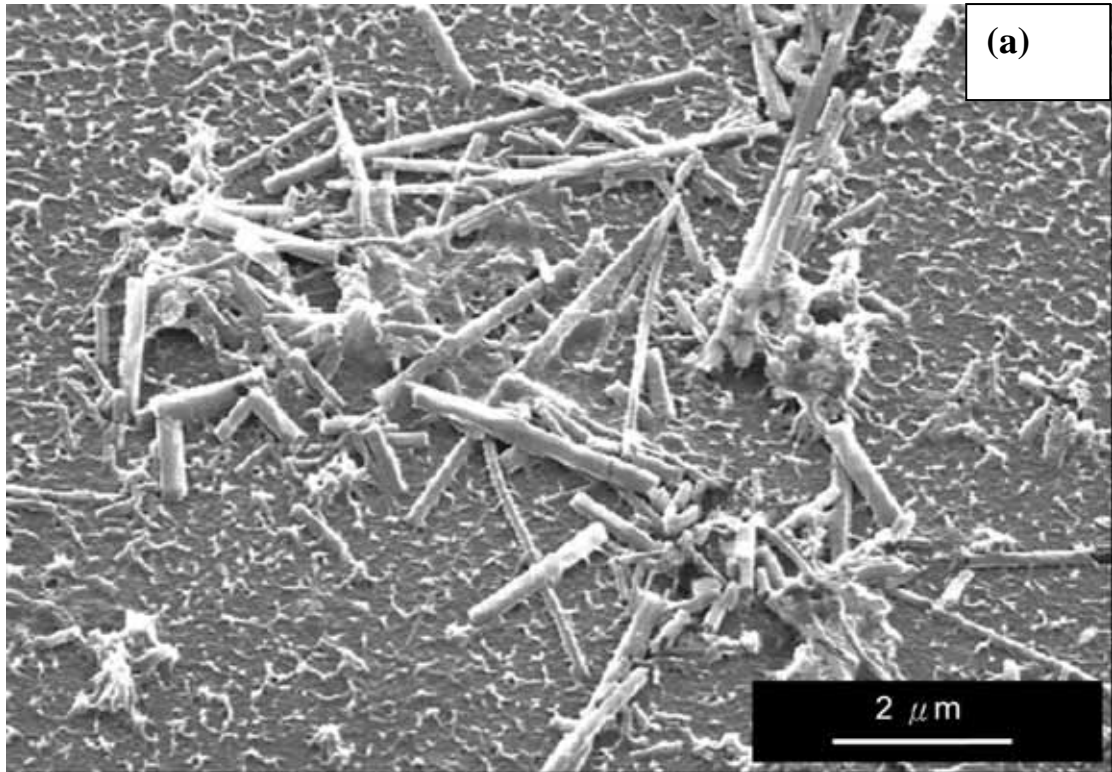


圖 4-16 未添加乙二胺之溶液共沉法合成之硫化鋅 XRD 繞射圖



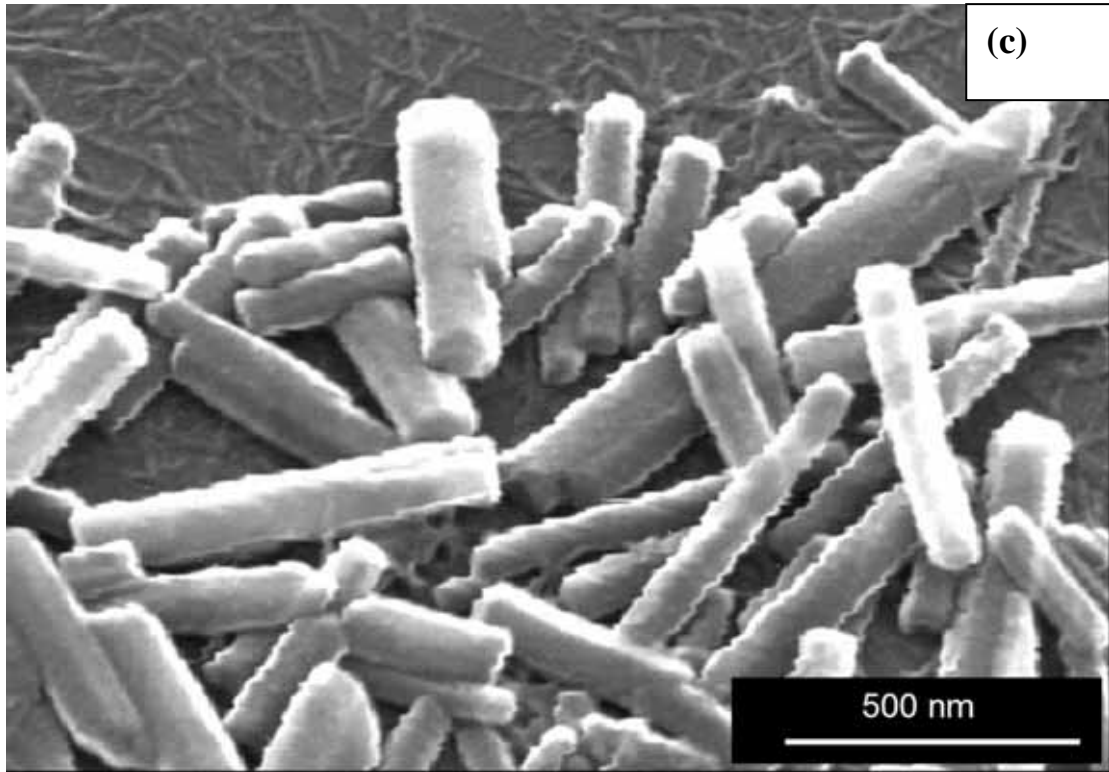


圖 4-17 添加乙二胺以溶液共沉法合成之硫化鋅奈米棒

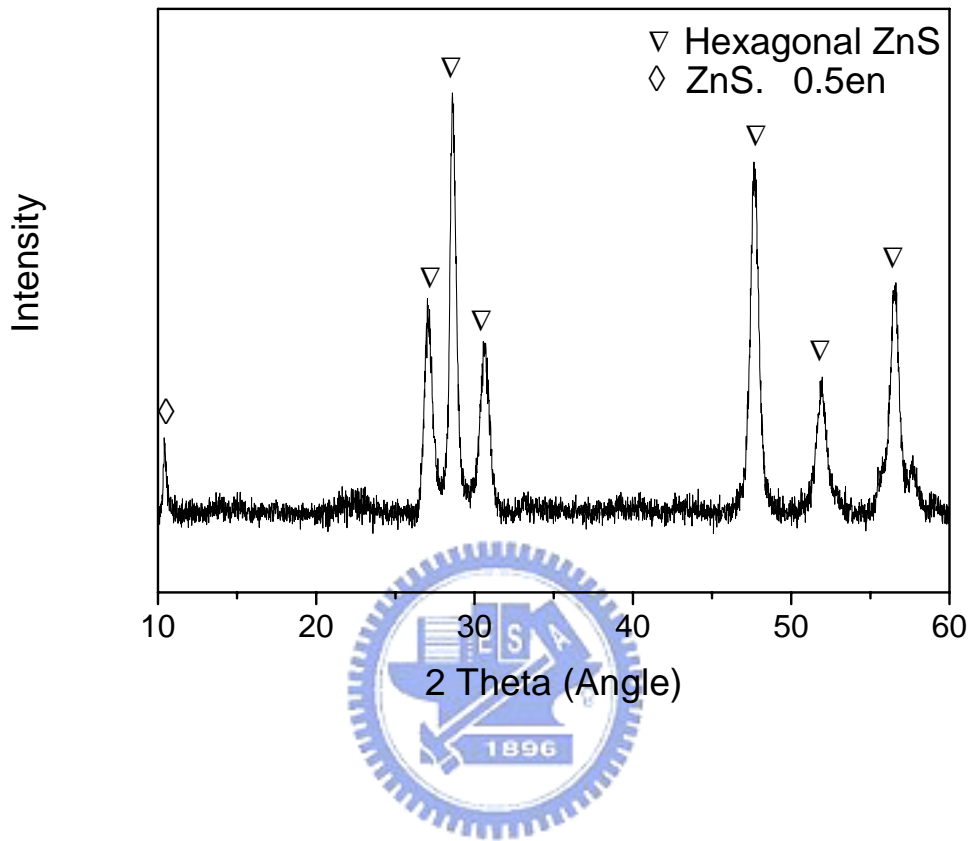


圖 4-18 添加乙二胺以溶液共沉法合成之硫化鋅奈米棒之 XRD

圖

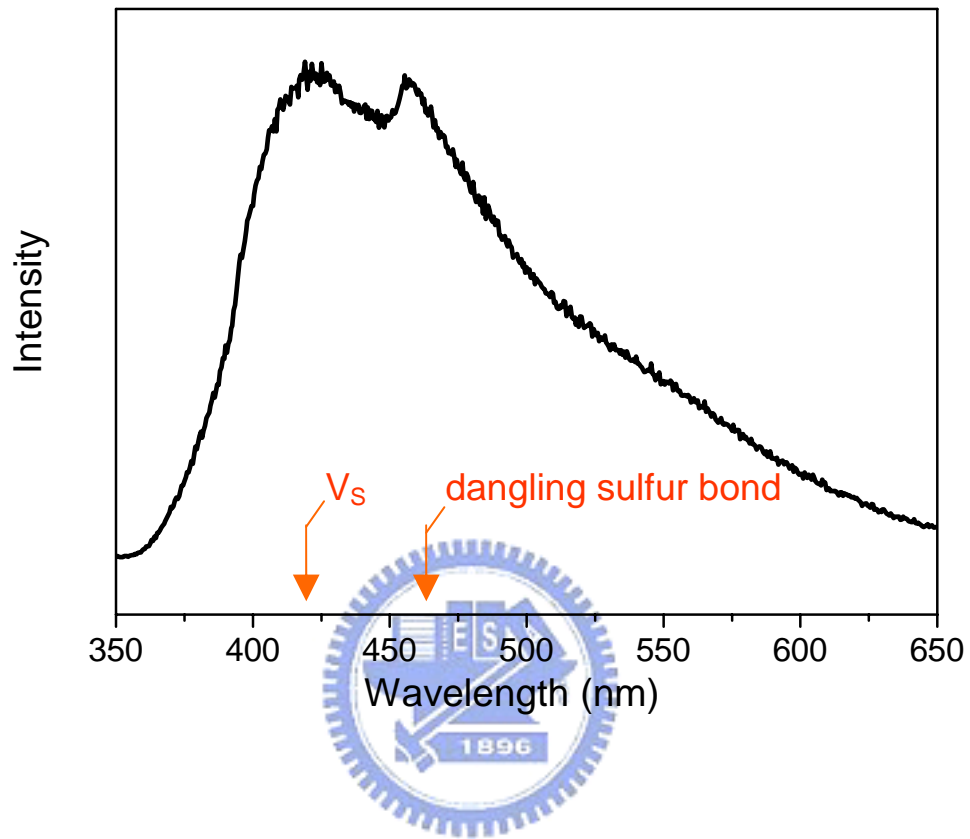


圖 4-19 添加乙二胺以溶液共沉法合成之硫化鋅奈米棒之 PL 圖