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(// , //)

Ni-Mo

NaCl

(TEM)

(SEM)

:

[]

"

"

[]

[]

[]

DC

[]

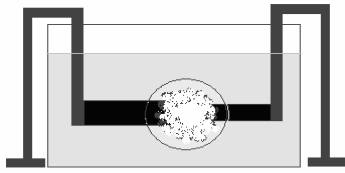
[]

[]

(DC)

()

()



[]

Ni-Mo

()

[]

Cl⁻ Na⁺

[]

°C

DC

(SEM)

()

()

SEM ()
 Ni-Mo
 .() []
 % : Ni:Mo

figure	Catalyst	at%
-2	None	-
-2	Fe	2
-2	Co	2
-2	Ni	2
-2	Co:Mo	1:1
-2	Ni:Mo	1:1

figure	atomic percent
-3	2:1%
-3	4:1%
-3	10:1%

(-)
 (-)
 / - / at%
)
 .[]
 (Ni:Mo % :)

SEM (-) (-)

Ni

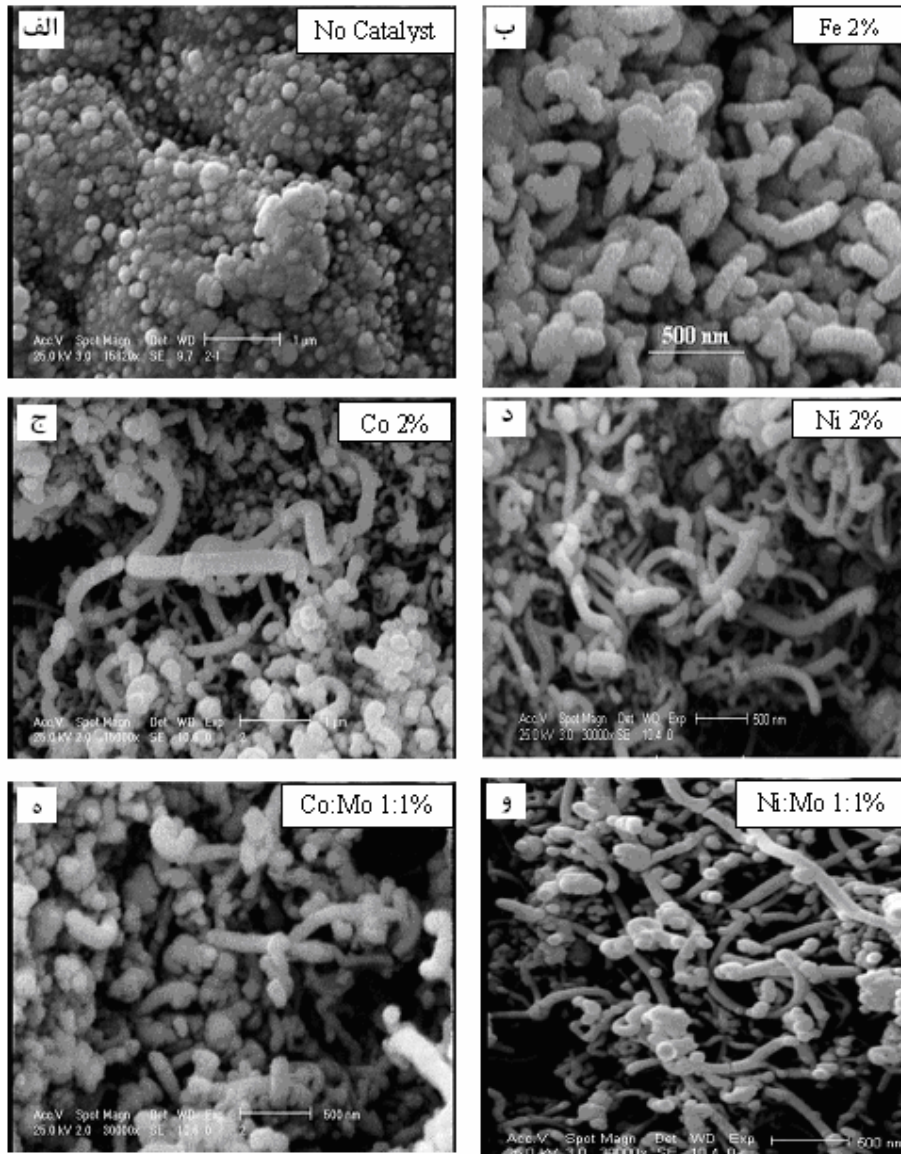
) H₂O₂ HNO₃ ()
 (-) (-)
 SEM (-)
 (-) Ni-Mo Co-Mo

% : Ni-Mo

- nm

.[-]

TEM



$$d = \frac{232}{\nu - 6.5} \quad ()$$

RBM ν
 CNT d cm⁻¹
 D G
 (-)
 % : Ni-Mo
 D G
 (G/D=)

(-) (-)
 (-)
 % : Ni:Mo
 RBM
 cm⁻¹
 ()
 ()
 [] RBM

(-)

cm⁻¹

RBM

(-)

C-C

)

% :

(% :

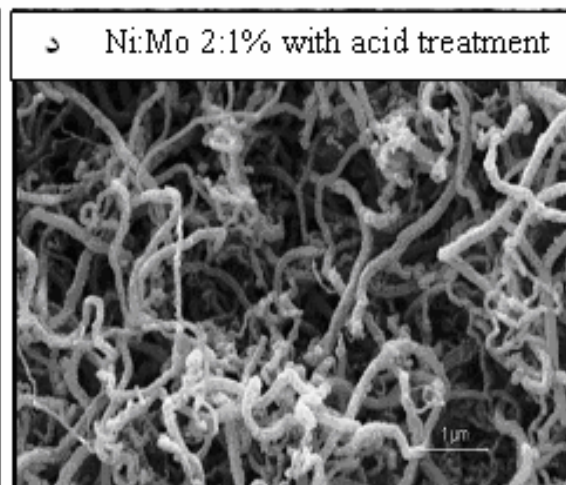
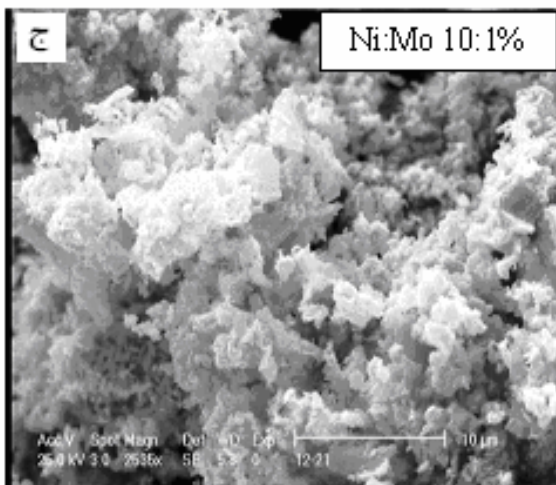
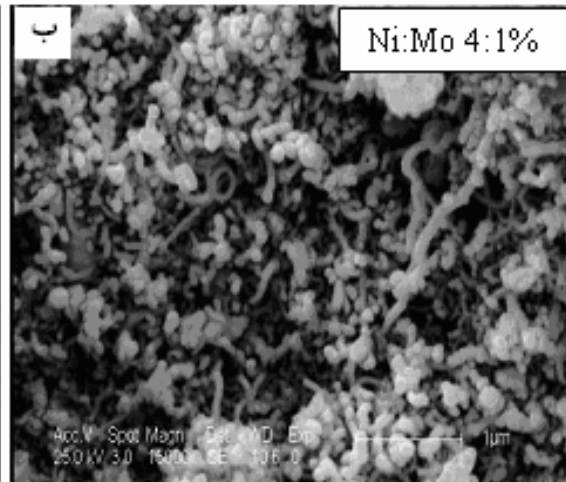
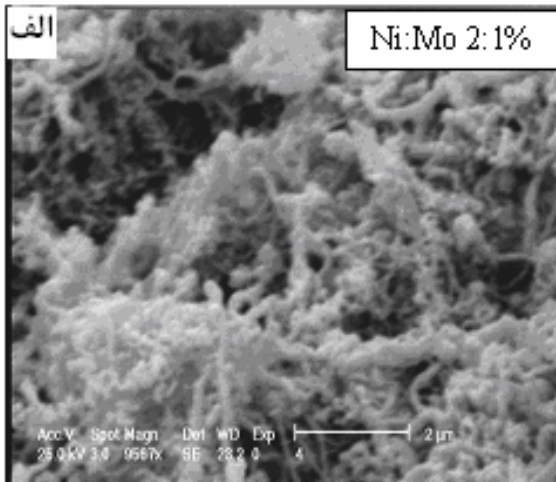
SEM

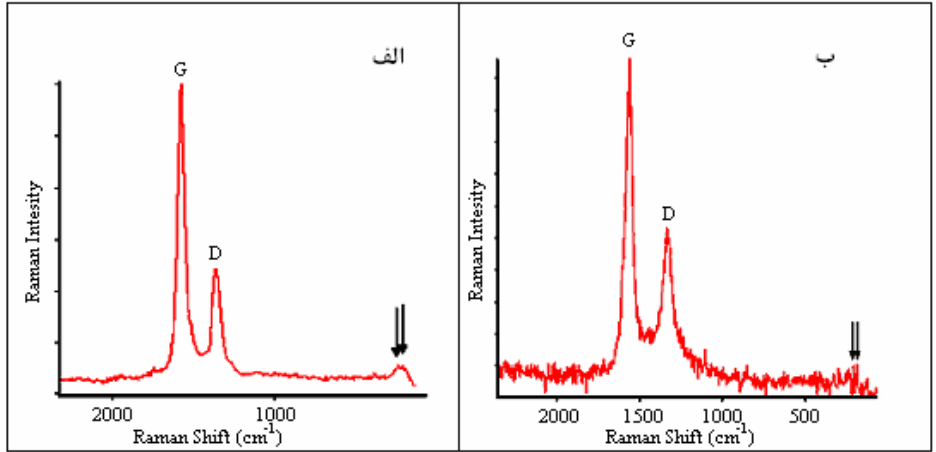
TEM

SEM

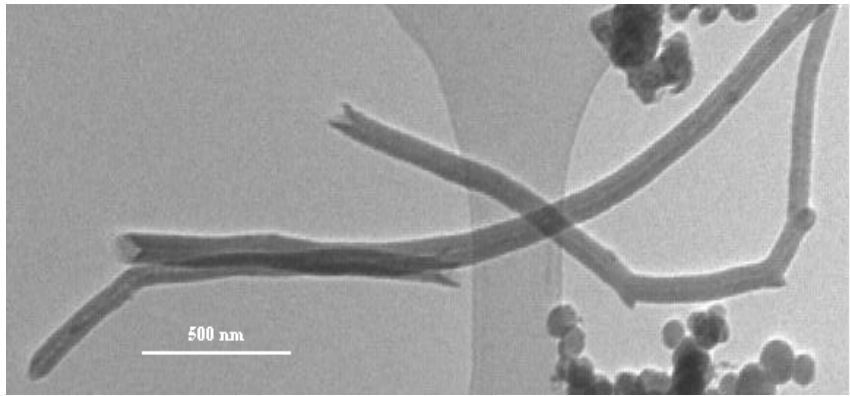
% :

Ni:Mo





.% : : % : :



. : % :

Co:Mo Ni:Mo

Ni:Mo

SEM

Co:Mo

Ni

Ni:Mo

Ni Co Fe

SEM

Ni

Ni:Mo % :

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- 1 - Arc Discharge
- 2 - Laser Ablation
- 3 - Chemical Vapor Deposition
- 4 - Thermalize
- 5 - Radial Breathing Modes