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(II)

(Chemical Oxygen Demand)

(OH

).(Glaze et al.1987)

OH

(AOPs)

Advanced Oxidation Processes

COD

Oxidation – Reduction Potential (ORP)

2,4-DCP

$E^\circ = + 3.06 \text{ V}$

Fe^{2+} H_2O_2

2,4-DCP

OH

)

:(Freeman 1998)

(

$\text{H}_2\text{O}_2 /$

() AOPs

UV /

DCP

$\text{H}_2\text{O}_2 / \text{UV} /$

COD BOD₅

UV/ H_2O_2

BOD₅/COD

$\text{Fe}^{2+} / \text{H}_2\text{O}_2$

H.J.H Fenton

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(Fenton Reaction)

(Fenton Reagent)

.(Nesheiwat et al. 2000)

OH

H_2O_2

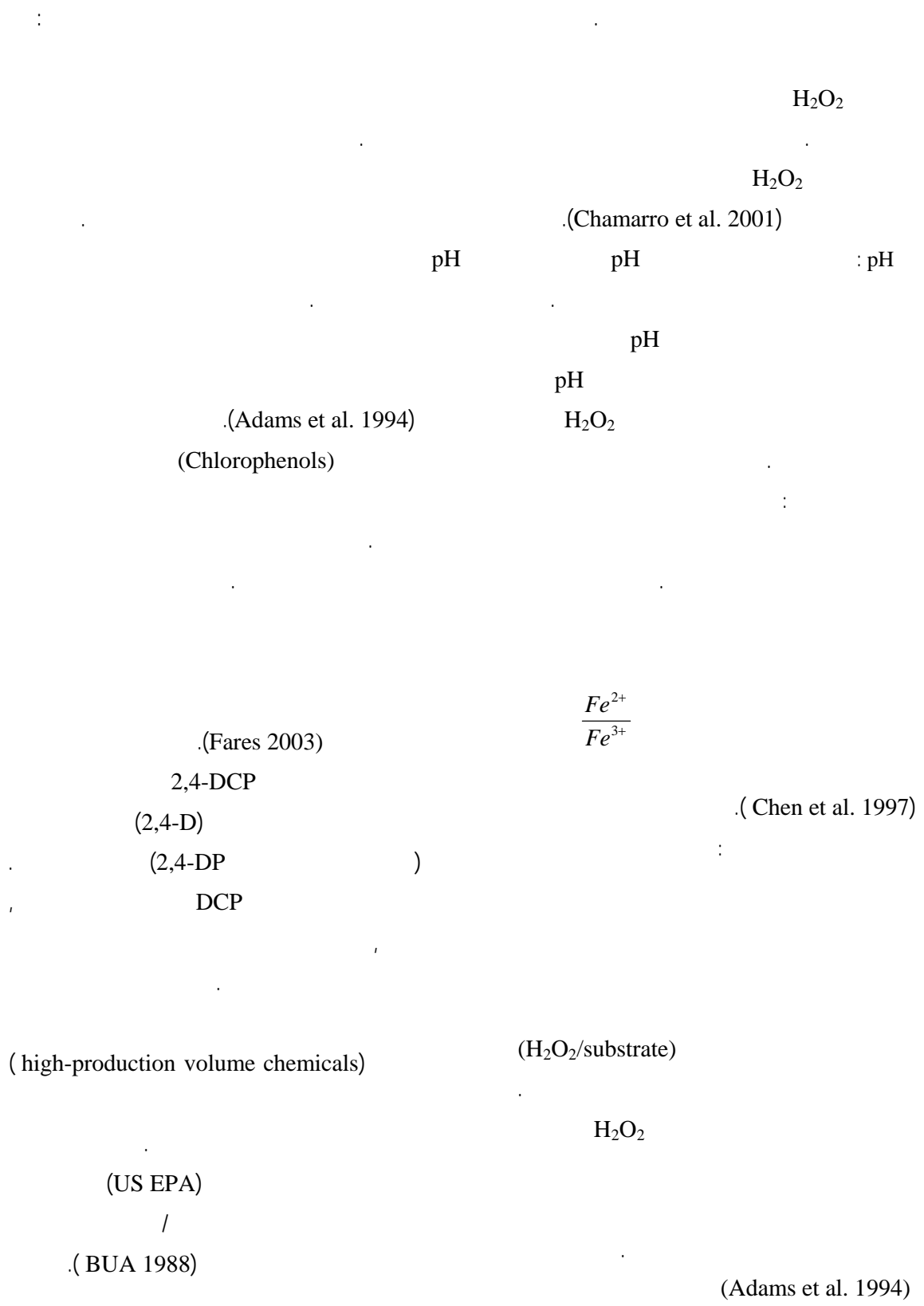
2,4-)

(DCP

.(Bigda 1995)

2,4-DCP

()



Fe=15 mg/L

2,4-DCP=100 mg/L

pH

mg/L

2,4-DCP

pH=3

Fe=15 mg/L

(II)

() H₂O₂H₂O₂

Fe=15 mg/L

pH

)

2,4-DCP=50 mg/L

pH (

2,4-DCP=100 mg/L

pH

H₂O₂H₂O₂H₂O₂ (II)H₂O₂

COD

.(Chamaro et al. 2001)

H₂O₂ =50 mg/LBOD₅ CODH₂O₂

COD

.(APHA 1998)

(II)

H₂O₂=50 mg/L

COD %

Fe(II) =5 mg/L H₂O₂=50 mg/L

COD %

COD

%

COD

COD

Fe(II) =5 mg/L

2,4-DCP=100 mg/L

BOD₅H₂O₂=50, 75, 100 mg/L

mg/L	COD	COD	H ₂ O ₂	H ₂ O ₂
BOD ₅	/ / / mg/L			
/ / /	mg/L			
		()		
COD			%	%
	COD %			
BOD ₅ /COD		COD	(II)	H ₂ O ₂
	/			
COD				
		(II)	H ₂ O ₂ = 100 mg/L	
Fe=15 mg/L	H ₂ O ₂ =100 mg/L	COD		
	BOD ₅ /COD		%	
	()		5 mg/L	
		%	COD	
	BOD ₅ /COD			
		H ₂ O ₂ = 100 mg/L		
		10 min	Fe(II) = 5 mg/L	
		%	COD	
BOD ₅ /COD	Fe=10 mg/L	COD		
/	H ₂ O ₂ =50 mg/L			
	2,4-DCP=50 mg/L			
			()	
H ₂ O ₂ =100 mg/L	Fe=15 mg/L			
/	BOD ₅ /COD		H ₂ O ₂	
	()	COD %	%	
	BOD ₅ /COD	COD	(II)	
Fe=15 mg/L				
		H ₂ O ₂ =75 mg/L		
Fe=15 mg/L	BOD ₅ /COD		Fe(II) = 10 mg/L	
		COD	2,4-DCP=100 mg/L	
	BOD ₅ /COD			

	H ₂ O ₂			
pH	(II)		2,4-DCP=100 mg/L	
	/ / / /			
	.()	pH	2,4-DCP=100 mg/L	BOD ₅ /COD
		pH		/
pH		2,4-DCP=100 mg/L	H ₂ O ₂ =100 mg/L	
				Fe=15 mg/L
	Fe=10 mg/L	H ₂ O ₂ =75 mg/L		, H ₂ O ₂
	COD			(BOD ₅ /COD)
		Fe H ₂ O ₂		
pH	pH		Fe ²⁺	H ₂ O ₂
			/	
				.() /
				BOD ₅ /COD
				(II)
	%			
	%		H ₂ O ₂	
		.(Ma et al. 2000)	H ₂ O ₂	
		pH		
.(Bum et al. 1999)				BOD ₅ /COD
			pH=3-4	pH
			pH	
	.(Chamarro et al. 2001)		NaOH	pH
				pH
				pH 2,4-DCP=50 mg/L

%

)

COD

()

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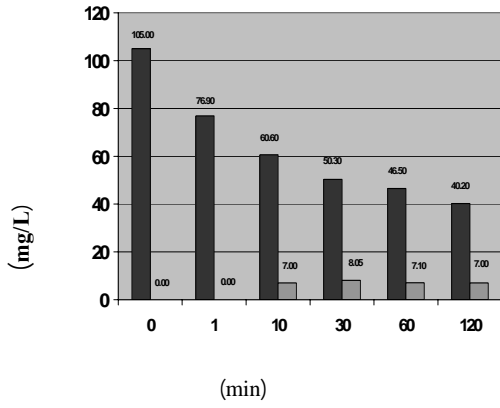
Fe(II)=10 mg/L	H ₂ O ₂		2,4-DCP=50 mg/L				$\frac{BOD_5}{COD}$		BOD ₅ , COD			
	Fe=10 mg/L											
	H ₂ O ₂ =100 mg/L		H ₂ O ₂ =75 mg/L		H ₂ O ₂ =50 mg/L							
$\frac{BoD_5}{COD}$	BOD ₅ mg/L	COD	COD mg/L	$\frac{BoD_5}{COD}$	BOD ₅ mg/L	COD	COD mg/L	$\frac{BoD_5}{COD}$	BOD ₅ mg/L	COD	COD mg/L	min
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Fe(II)=15 mg/L	H ₂ O ₂		2,4-DCP=50 mg/L				$\frac{BOD_5}{COD}$		BOD ₅ , COD			
	Fe=15 mg/L											
	H ₂ O ₂ =100 mg/L		H ₂ O ₂ =75 mg/L		H ₂ O ₂ =50 mg/L							
$\frac{BoD_5}{COD}$	BOD ₅ mg/L	COD	COD mg/L	$\frac{BoD_5}{COD}$	BOD ₅ mg/L	COD	COD mg/L	$\frac{BoD_5}{COD}$	BOD ₅ mg/L	COD	COD mg/L	min
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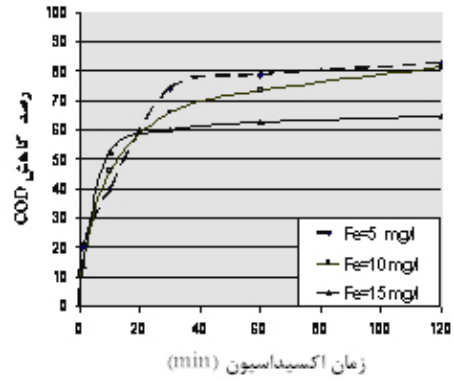
/ ...

Fe(II)=10 mg/L	H ₂ O ₂		2,4-DCP=100 mg/L				$\frac{BOD_5}{COD}$		BOD ₅ · COD			
	Fe=10 mg/L											
	H ₂ O ₂ =100 mg/L			H ₂ O ₂ =75 mg/L			H ₂ O ₂ =50 mg/L					
$\frac{BoD_5}{COD}$	BOD ₅ mg/L	COD	COD mg/L	$\frac{BoD_5}{COD}$	BOD ₅ mg/L	COD	COD mg/L	$\frac{BoD_5}{COD}$	BOD ₅ mg/L	COD	COD mg/L	min
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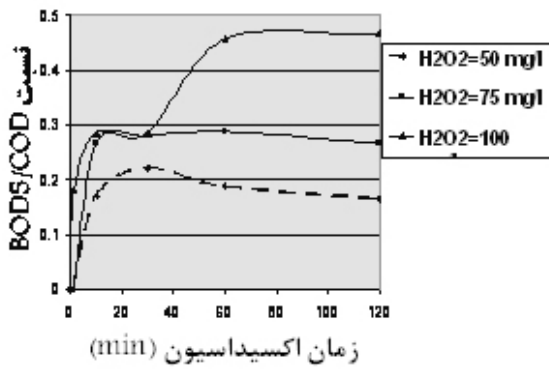
Fe(II)=15 mg/L	H ₂ O ₂		2,4-DCP=100 mg/L				$\frac{BOD_5}{COD}$		BOD ₅ · COD			
	Fe=15 mg/L											
	H ₂ O ₂ =100 mg/L			H ₂ O ₂ =75 mg/L			H ₂ O ₂ =50 mg/L					
$\frac{BoD_5}{COD}$	BOD ₅ mg/L	COD	COD mg/L	$\frac{BoD_5}{COD}$	BOD ₅ mg/L	COD	COD mg/L	$\frac{BoD_5}{COD}$	BOD ₅ mg/L	COD	COD mg/L	min
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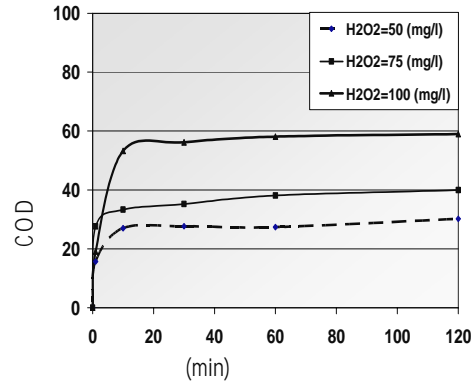
BOD₅ COD
 2,4-DCP=100 mg/L
 Fe=10(mg/L) H₂O₂=75(mg/L)



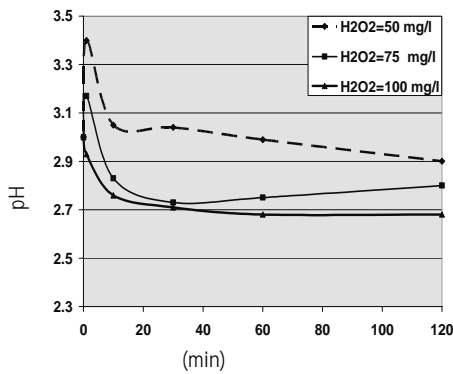
COD Fe(II)
 H₂O₂=50 mg/L 2,4-DCP=50 mg/L



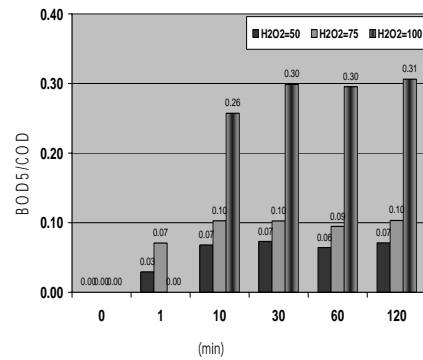
BOD₅/COD
 Fe=15 mg/L H₂O₂ 2,4-DCP=50 mg/L



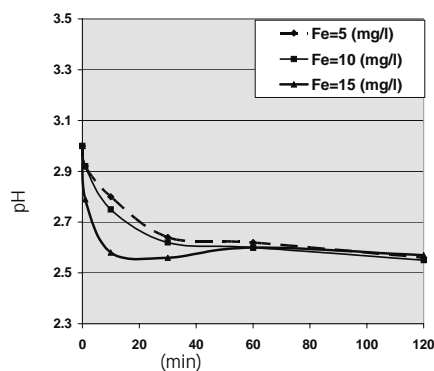
COD H₂O₂
 Fe(II)=15 mg/L 2,4-DCP=100 mg/L



pH
 2,4-DCP=100 mg/L
 Fe(II)=10 mg/L



BOD₅/COD
 2,4-DCP=100 mg/L
 Fe=15 mg/L H₂O₂



pH :
2,4-DCP=100 mg/L

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