

Supporting Information

Table. S1 Details of Chemical Reagents

Reagent	Information	Production
Cadmium Chloride	$\text{CdCl}_2 \cdot 2\text{H}_2\text{O}$, 99.95%	Chengdu Kelong Chemical co., Ltd
Glutathione	GSH, 98%	Aladdin Industrial Inc
Sodium Sulfide	$\text{Na}_2\text{S} \cdot 9\text{H}_2\text{O}$, ≥98%	Chengdu Kelong Chemical co., Ltd
Copper Dichloride	$\text{CuCl}_2 \cdot 2\text{H}_2\text{O}$, ≥99%	Chengdu Kelong Chemical co., Ltd
Sulfocarbamide	≥99%	Chongqing Chuandong Chemical Group Co., Ltd
3-Mercaptopropionic acid	3-MPA, 98%	Aladdin Industrial Inc
Caustic Soda	NaOH, ≥98%,	Chengdu Kelong Chemical co., Ltd
L-Cysteine	L-CyS, 99.0%	Chengdu Kelong Chemical co., Ltd
Tris buffer	≥99.8%	Aladdin Industrial Inc
Alcohol	99.70%	Chongqing Chuandong Chemical Group Co., Ltd
Selenium	99.90%	Aladdin Industrial Inc
Sodium Borohydride	NaBH4,98%	Adamas Reagent Co.,Ltd
Zinc Acetate	$\text{C}_4\text{H}_6\text{O}_4\text{Zn} \cdot 2\text{H}_2\text{O}$, 99.0%	Chengdu Kelong Chemical co., Ltd
Gelatin		Sinopharm Chemical Reagent Beijing Co.,Ltd
Ethanediamine	98%	Aladdin Industrial Inc
Citric Acid	≥99.5%	Chengdu Kelong Chemical co., Ltd
Tellurium	Te,99.999%	Adamas Reagent Co.,Ltd
Sodium Molybdate	$\text{Na}_2\text{MoO}_4 \cdot 2\text{H}_2\text{O}$	Chongqing Chuandong Chemical Group Co., Ltd
Acetic Ether	$\text{C}_4\text{H}_8\text{O}_2$, ≥99.5%	Chengdu Kelong Chemical co., Ltd
3-Aminopropyl Triethoxy Silane	$\text{C}_9\text{H}_{23}\text{NO}_3\text{Si}$,98%,	Aladdin Industrial Inc
Caustic Potash	KOH,≥99.0%	Chengdu Kelong Chemical co., Ltd
Polyethylene Glycol 1000		Sinopharm Chemical Reagent Beijing Co.,Ltd
Formic Acid	HCOOH, ≥95%	Chongqing Chuandong Chemical Group Co., Ltd
Acetic Acid	CH_3COOH , ≥99.0%	Chongqing Chuandong Chemical Group Co., Ltd
Lactic Acid	$\text{C}_3\text{H}_6\text{O}_3$	Chongqing Chuandong Chemical Group Co., Ltd
Ethyl Lactate	$\text{C}_5\text{H}_{10}\text{O}_3$, ≥99.0%	Taitan Science technology Co. Ltd
Ethyl Caproate	$\text{C}_8\text{H}_{16}\text{O}_2$, ≥99.0%	Taitan Science technology Co. Ltd
Ethyl Formate	$\text{C}_3\text{H}_6\text{O}_2$, ≥99.0%	Taitan Science technology Co. Ltd
Carbinol	CH_3OH , ≥99.9%	Chongqing Chuandong Chemical Group Co., Ltd
Isoamyl Alcohol	$\text{C}_5\text{H}_{12}\text{O}$, ≥99.0%	Taitan Science technology Co. Ltd
N-Butyl Alcohol	$\text{C}_4\text{H}_{10}\text{O}$, ≥99.0%	Chongqing Chuandong Chemical Group Co., Ltd
N-Propyl Alcohol	$\text{C}_3\text{H}_8\text{O}$, ≥99.0%	Taitan Science technology Co. Ltd
Acetal	$\text{C}_6\text{H}_{14}\text{O}_2$, ≥99.0%	Taitan Science technology Co. Ltd
Furaldehyde	$\text{C}_5\text{H}_4\text{O}_2$, ≥99.0%	Taitan Science technology Co. Ltd

Table. S2 Details of Baijiu from Luzhou Laojiao

Type	Mark	Sensory Quality	Alcoholic Strength (%)
Based Baijiu of Process improvement	CT		
	CH		
	CJ2		
	LX		
	CX		
	ZL2		
	JX		
	DZ2		
	A	+++++	
	B	++++	
Based Baijiu of Quality Grade	C	+++	
	D	++	
	E	+	
	F		
	38Te (38Tequ)	++++	38
	52Te	++++	52
Commercial Baijiu	38TQ (38Touqu)	+++	38
	52TQ	+++	52
	38EQ (38Erqu)	++	38
	52EQ	++	52
	38NP (National Pits)	+++++	38
	52NP	++++	52

Table.S3 Fluorescence spectrum measurement parameters

QDs	Baijiu Samples	EX	EM	Spectral Slit	QDs Addition	Baijiu Addition
Cu:CdS@GSH QDs	BIP	377	522	10:5	100μL	2ml
	BQG	377	522	10:5	100μL	2ml
	CB	377	522	10:5	100μL	2ml
	BIP	370	515	10:5	30μL	20μL
CdS@CyS QDs	BQG	370	515	10:5	30μL	20μL
	CB	370	515	10:5	30μL	20μL
	BIP	380	576	10:5	50μL	2ml
CdS@MPA QDs	BQG	380	576	10:5	50μL	2ml
	CB	380	576	10:5	50μL	2ml
	BIP	315	390	10:5	100μL Dilute ten times QDs	2ml
ZnSe@MPA QDs	BQG	315	390	10:5	100μL Dilute ten times QDs	2ml
	CB	315	390	10:5	100μL Dilute ten times QDs	2ml
	BIP	320	480	10:5	200μL Dilute thousand times QDs	100μL
ZnSe-Cu@ZnS QDs	BQG	320	480	10:5	200μL Dilut thousand times QDs	100μL
	CB	320	480	10:5	200μL Dilute thousand times QDs	100μL
	BIP	350	430	10:5	80μL	2ml
G-C QDs	BQG	350	430	10:5	80μL	2ml
	CB	350	430	10:5	80μL	2ml
	BIP	340	440	10:5	300μL Dilute thousand times QDs	2ml
E-C QDs	BQG	340	440	10:5	200μL Dilute thousand times QDs	2ml
	CB	340	440	10:5	300μL Dilute thousand times QDs	2ml
	BIP	320	410	10:5	80μL Dilut hundred times QDs	2ml
MoS2 QDs	BQG	320	410	10:5	80μL Dilut hundred times QDs	2ml
	CB	320	410	10:5	400μL Dilut hundred times QDs	2ml
	BIP	313	515	10:5	50μL Dilut hundred times QDs	2ml
CdTe@MPA QDs	BQG	313	515	10:5	300μL Dilute ten times QDs	2ml
	CB	313	515	10:5	100μL	2ml
	BIP	380	540	10:5	200μL	2ml
CdTe-Mn@GSH QDs	BQG	380	540	10:5	200μL	2ml
	CB	380	540	10:5	200μL	2ml
	BIP	321	525	10:5	200μL Dilut thousand times QDs	10μL
ZnO@PG QDs	BQG	321	525	10:5	200μL Dilut thousand times QDs	10μL
	CB	321	525	10:5	200μL Dilut thousand times QDs	10μL
	BIP	335	521	10:5	200μL Dilut thousand times QDs	10μL
ZnO@APTES QDs	BQG	335	521	10:5	200μL Dilut thousand times QDs	10μL
	CB	335	521	10:5	200μL Dilut thousand times QDs	10μL
	BIP	390	525	10:5	100μL Dilute ten times QDs	2ml
CdSe@MPA QDs	BQG	390	525	10:5	200μL Dilute ten times QDs	2ml
	CB	390	525	10:5	100μL Dilute ten times QDs	2ml

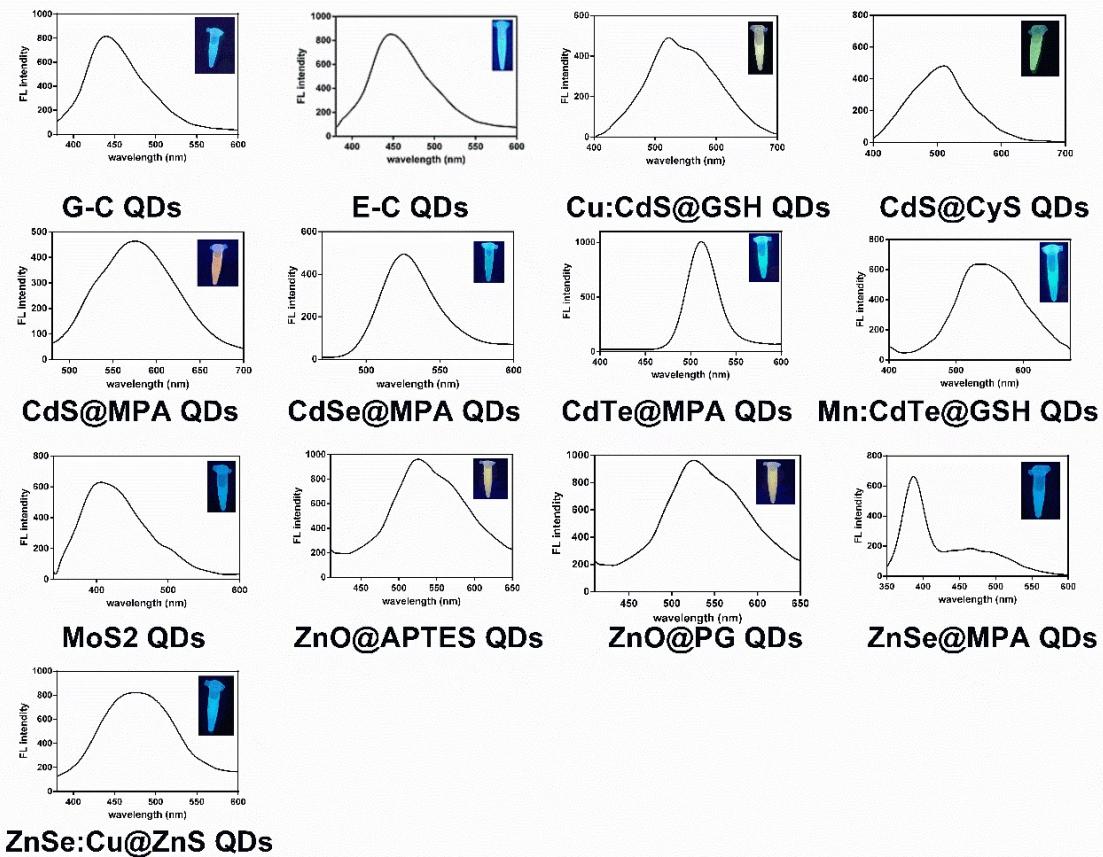


Fig.S1 Fluorescence emission spectra and physical diagram of QDs

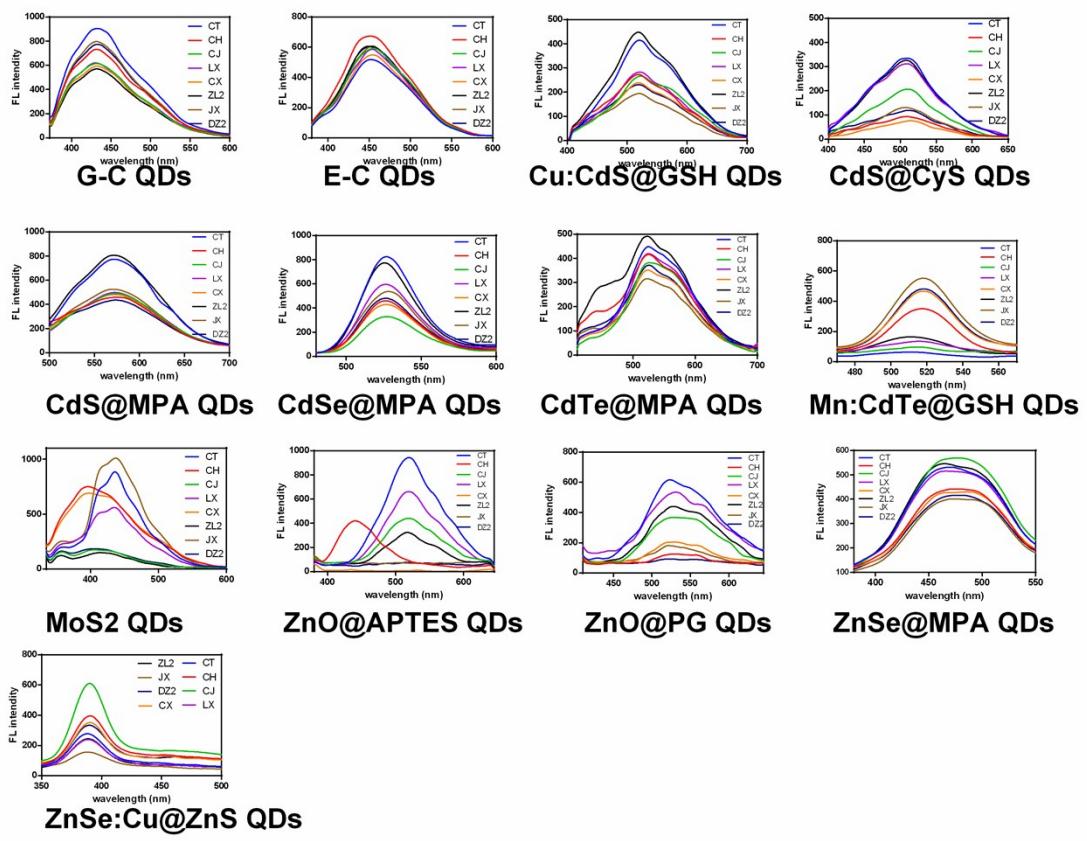


Fig.S2 Fluorescence spectrum QDs reacted based Baijiu of improved process

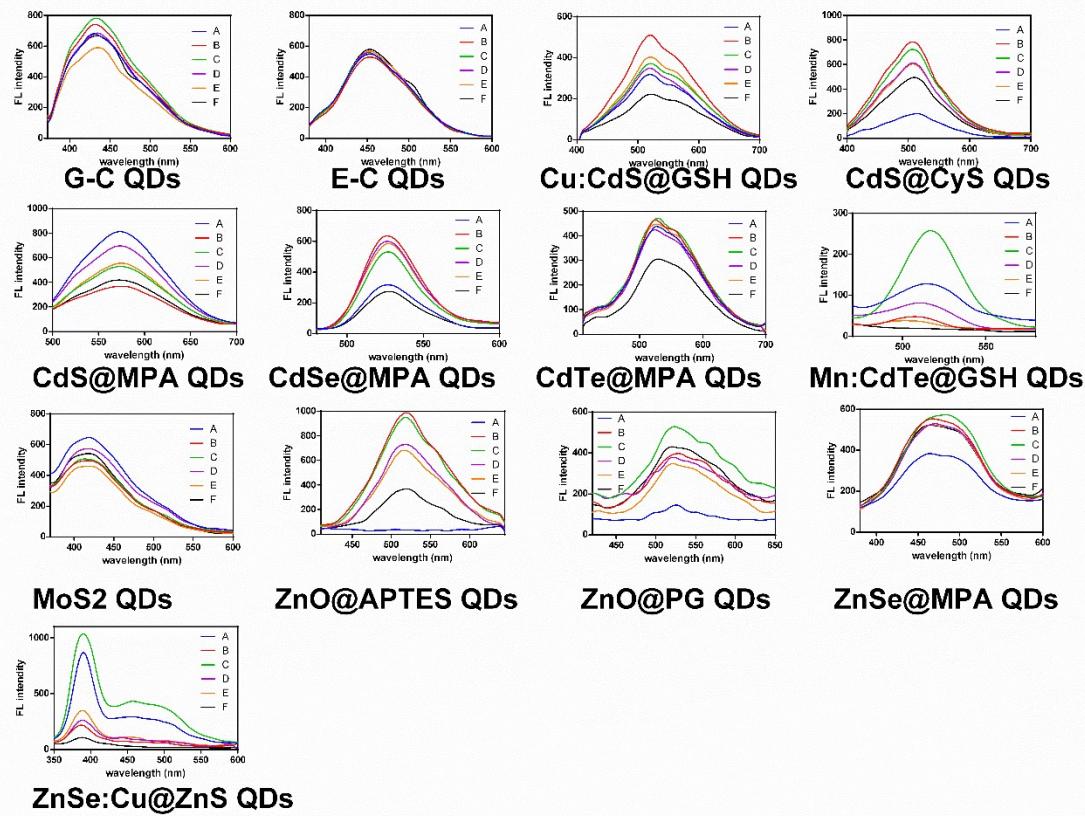


Fig.S3 Fluorescence spectrum QDs reacted based Baijiu of different quality grade

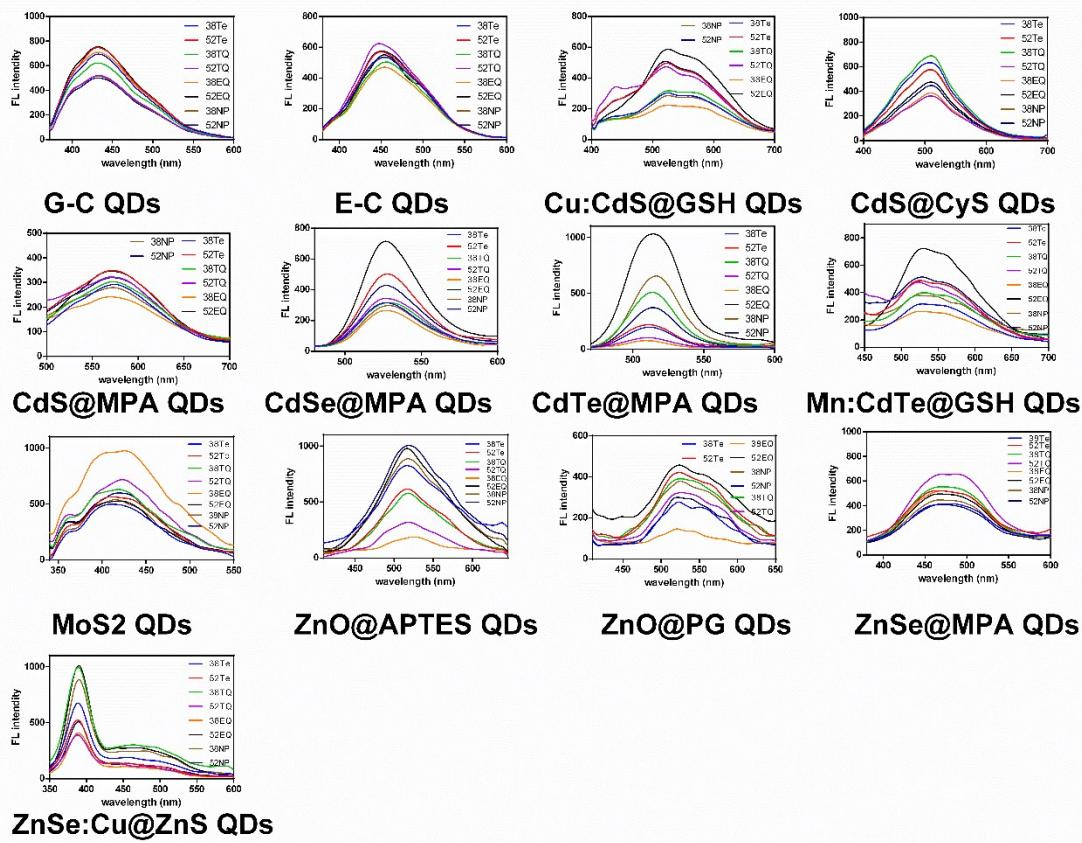


Fig.4 Fluorescence spectrum QDs reacted Commercial Baijiu

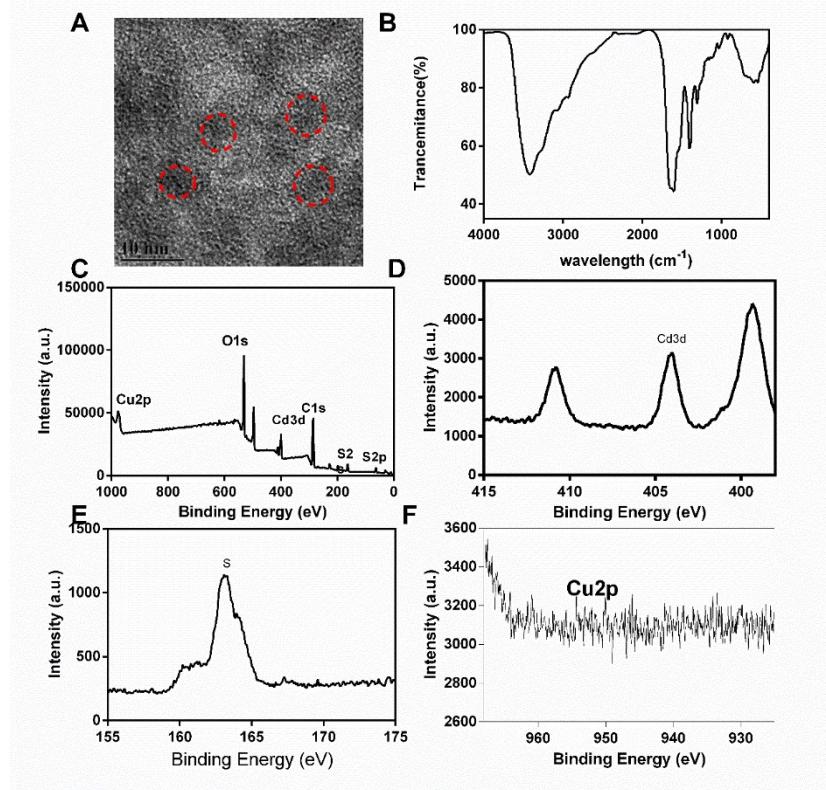


Fig. S5 Characterization of Cu:CdS@GSH QDs

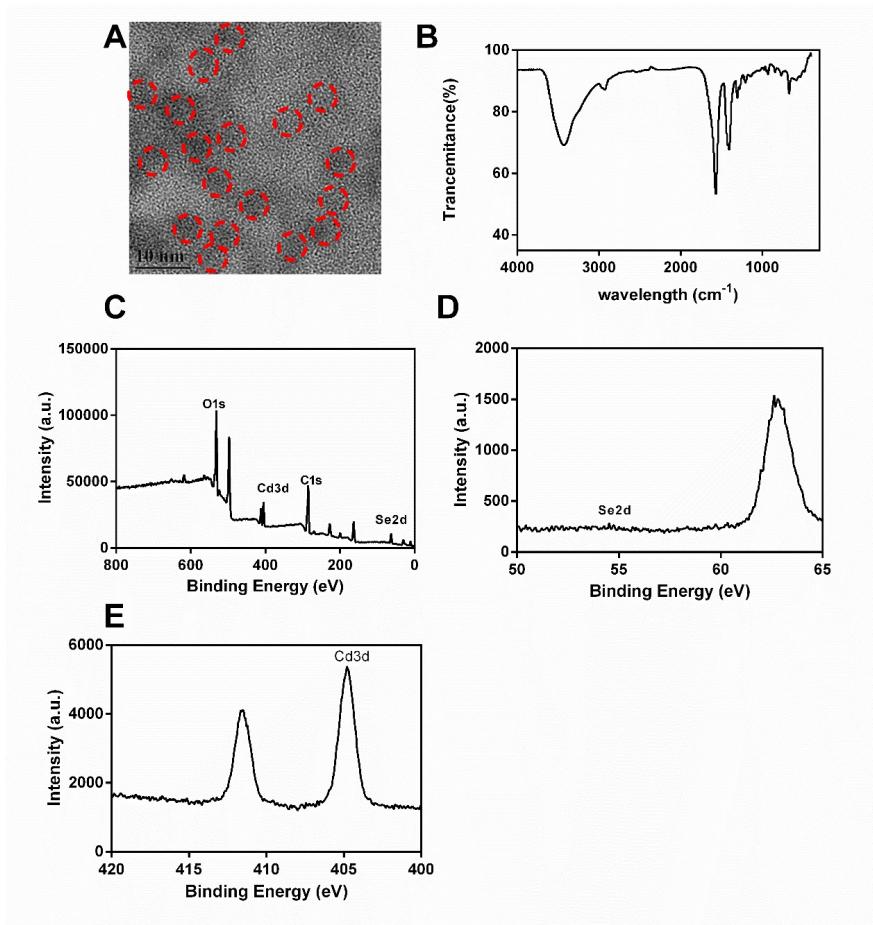


Fig. S6 Characterization of CdSe@MPA QDs

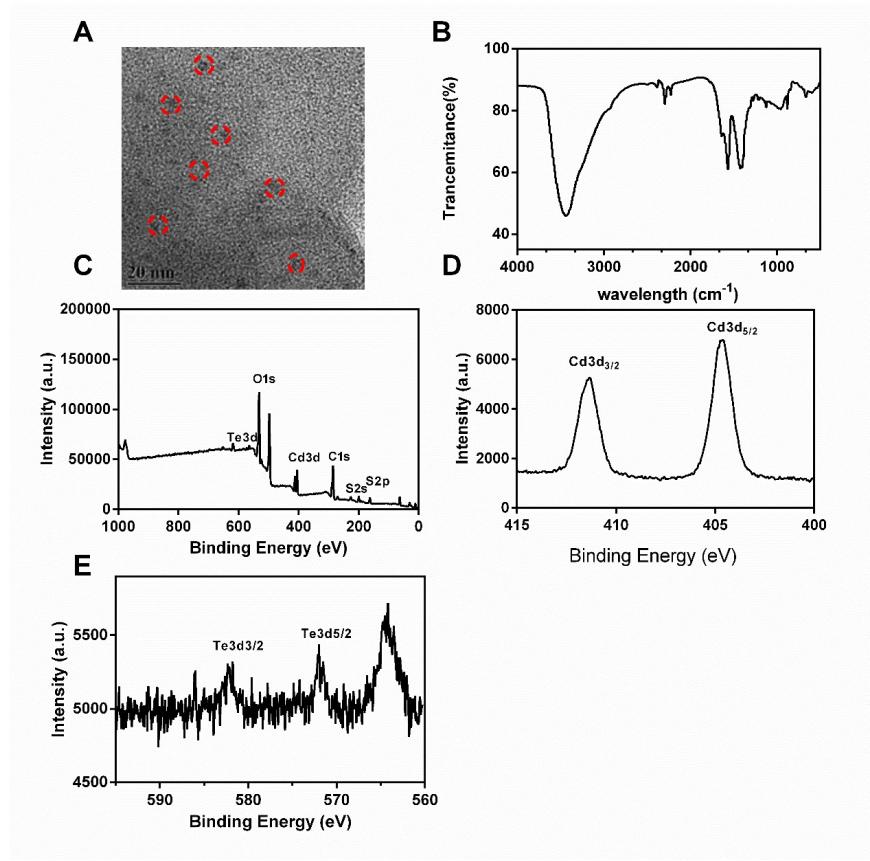


Fig. S7 Characterization of CdSe@MPA QDs

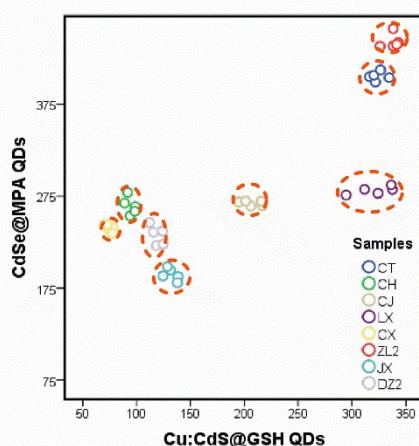
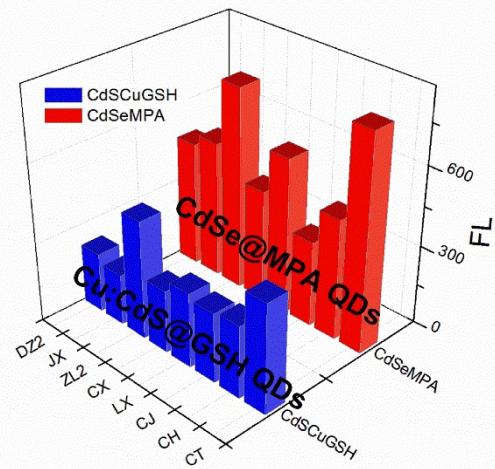
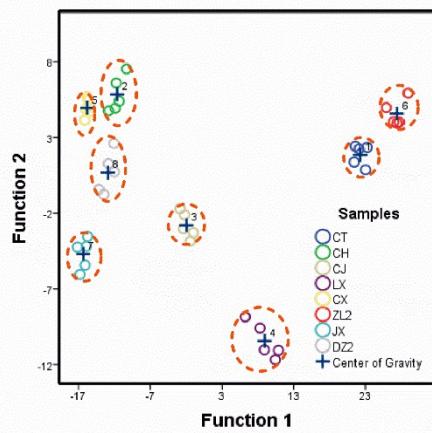
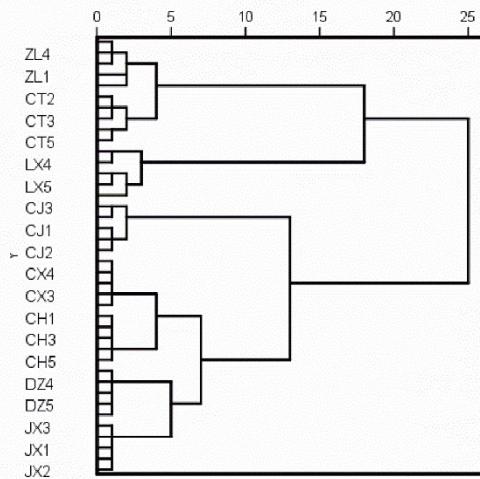
A**B****C****D**

Fig.S8 Discrimination of based Baijiu of improved process.A and B are the scatter diagram and histogram of the fluorescence intensity measured at the highest emission peak of the quantum dots after BIP reacted with the QDs. C is LDA analysis for data. D shows the result of HCA analysis.

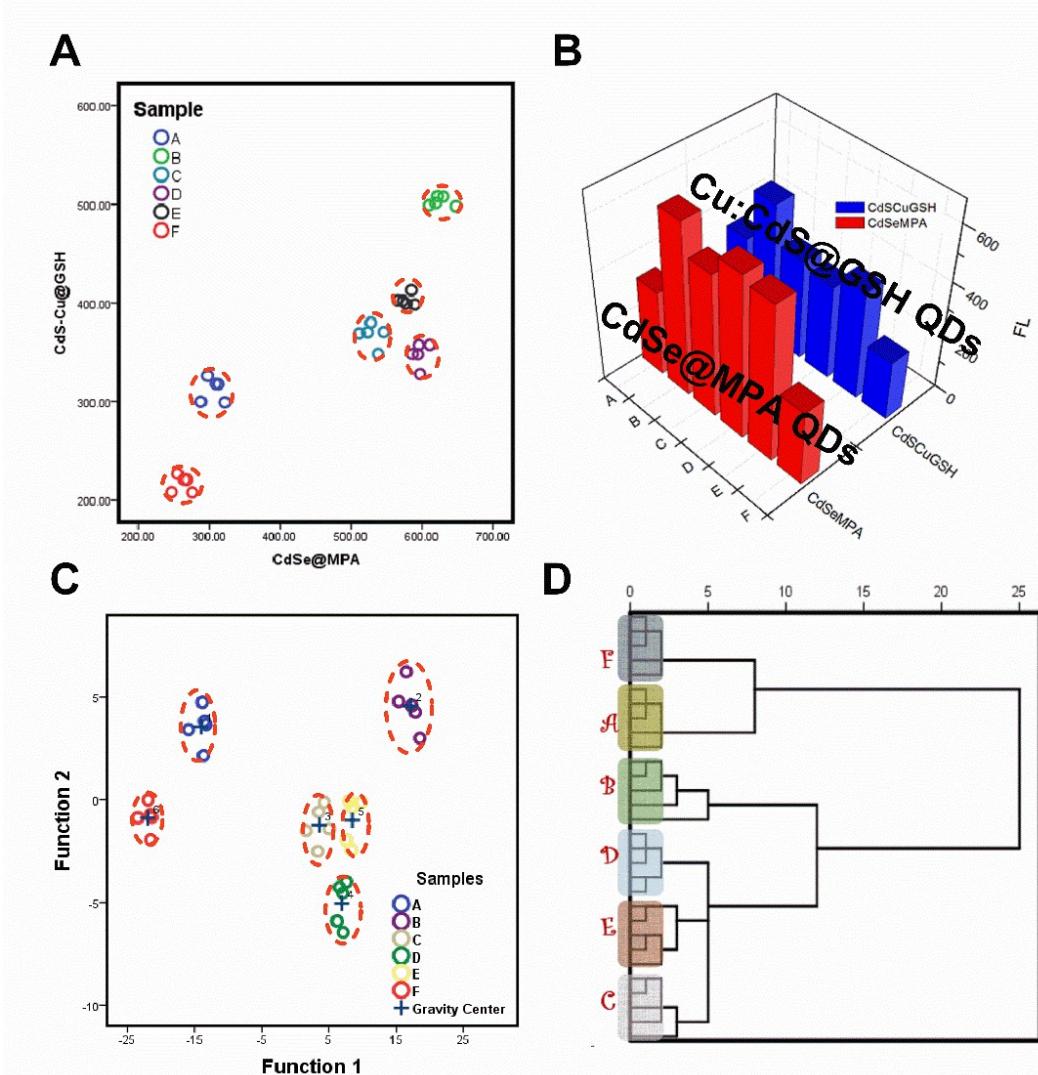


Fig.S9 Discrimination of based Baijiu of different quality grade. A and B are the scatter diagram and histogram of the fluorescence intensity measured at the highest emission peak of the quantum dots after BQG reacted with the QDs. C is LDA analysis for data. D shows the result of HCA analysis.

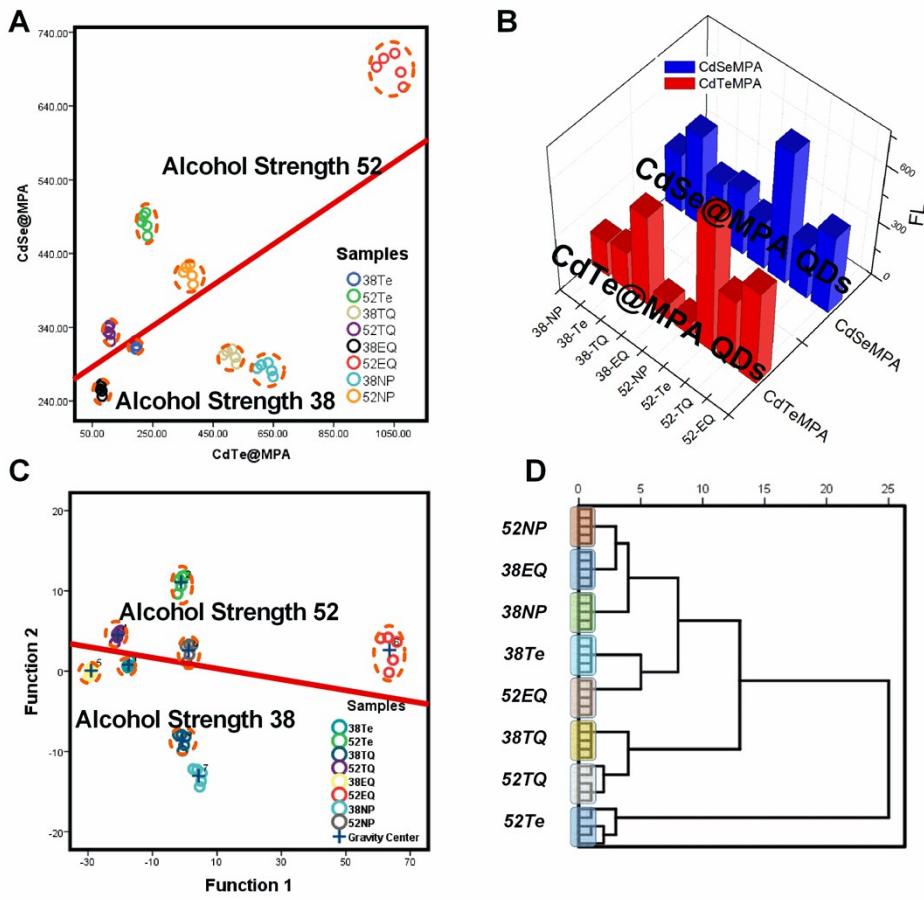


Fig.S10 Discrimination of Commercial Baijiu. A and B are the scatter diagram and histogram of the fluorescence intensity measured at the highest emission peak of the quantum dots after CB reacted with the QDs. C is LDA analysis for data. D shows the result of HCA analysis.