Supplementary materials

Supplementary Table 1

Literature search strategy for garlic and its derived compounds in the treatment of diabetic kidney disease

Search Strategy (PubMed)	
#1	Garlic [Mesh]
#2	garlic [Title/Abstract]
#3	Allium sativum L. [Title/Abstract]
#4	Alliin [Title/Abstract]
#5	S-allylcysteine sulfoxide [Title/Abstract]
#6	PCSO [Title/Abstract]
#7	S-(2-propenyl) cysteine sulfoxide [Title/Abstract]
#8	isoalliin [Title/Abstract]
#9	alliin, (L-Ala)-isomer [Title/Abstract]
#10	alliin, (L-Ala)-(R)-isomer [Title/Abstract]
#11	alliin, (L-Ala)-(S)-isomer [Title/Abstract]
#12	Allicin [Title/Abstract]
#13	thio-2-propene-1-sulfinic acid S-allyl ester [Title/Abstract]
#14	allylthiosulphinic acid allyl ester [Title/Abstract]
#15	diallyl disulfide-oxide [Title/Abstract]
#16	allylthiosulfinate [Title/Abstract]
#17	Allimin [Title/Abstract]
#18	S-allyl cysteine [Title/Abstract]
#19	diallyl trisulfide [Title/Abstract]
#20	allyl trisulfide [Title/Abstract]
#21	Allitridin [Title/Abstract]
#22	Allitridum [Title/Abstract]
#23	Allitrida [Title/Abstract]
#24	Dasuansu [Title/Abstract]
#25	Allyl sulfide [Title/Abstract]
#26	Diallylsulfide [Title/Abstract]
#27	diallyl sulfide [Title/Abstract]
#28	garlic oil [Title/Abstract]
#29	Ajoene [Title/Abstract]
#30	4,5,9-trithiadodeca-1,6,11-triene 9-oxide [Title/Abstract]
#31	allyl mercaptan [Title/Abstract]
#32	S-methyl L-Cysteine [Title/Abstract]
#33	allyl methyl sulfide [Title/Abstract]
#34	methyl propenyl sulfide [Title/Abstract]
#35	Allylmethylsulfide [Title/Abstract]
#36	3-methylthio-1-propene [Title/Abstract]
#37	Diallyl disulfide [Title/Abstract]
#38	allyl disulfide [Title/Abstract]
#39	diallyl disulphide [Title/Abstract]
#40	allyll disulfide [Title/Abstract]
#41	Allitin [Title/Abstract]
#42	Garlicin [Title/Abstract]
#43	#1 OR #2 OR #3 OR #4 OR #5 OR #6 OR #7 OR #8 OR #9 OR

	#10 OR #11 OR #12 OR #13 OR #14 OR #15 OR #16 OR #17 OR #18 OR #19 OR #20 OR #21 OR #22 OR #23 OR #24 OR #25 OR #26 OR #27 OR #28 OR #29 OR #30 OR #31 OR #32 OR #33 OR #34 OR #35 OR #36 OR #37 OR #38 OR #39 OR #40 OR #41 OR #42
#44	Diabetic Nephropathies [Mesh]
#45	Diabetic Nephropathies [Title/Abstract]
#46	Nephropathies, Diabetic [Title/Abstract]
#47	Nephropathy, Diabetic [Title/Abstract]
#48	Diabetic Nephropathy [Title/Abstract]
#49	Diabetic Kidney Disease [Title/Abstract]
#50	Diabetic Kidney Diseases [Title/Abstract]
#51	Kidney Disease, Diabetic [Title/Abstract]
#52	Kidney Diseases, Diabetic [Title/Abstract]
#53	Diabetic Glomerulosclerosis [Title/Abstract]
#54	Glomerulosclerosis, Diabetic [Title/Abstract]
#55	Intracapillary Glomerulosclerosis [Title/Abstract]
#56	Nodular Glomerulosclerosis [Title/Abstract]
#57	Glomerulosclerosis, Nodular [Title/Abstract]
#58	Kimmelstiel-Wilson Syndrome [Title/Abstract]
#59	Kimmelstiel Wilson Syndrome [Title/Abstract]
#60	Syndrome, Kimmelstiel-Wilson [Title/Abstract]
#61	Kimmelstiel-Wilson Disease [Title/Abstract]
#62	Kimmelstiel Wilson Disease [Title/Abstract]
#63	#44 OR #45 OR #46 OR #47 OR #48 OR #49 OR #50 OR #51 OR #52 OR #53 OR #54 OR #55 OR #56 OR #57 OR #58 OR #59 OR #60 OR #61 OR #62
#64	#43 AND #63

5

Search Strategy (Web of science)
(TS=(garlic) OR AB=(garlic OR Allium sativum L. OR Alliin OR S-allylcysteine sulfoxide OR PCSO OR S-(2-propenyl)cysteine sulfoxide OR Isoalliin OR alliin, (L-Ala)-isomer OR alliin, (L-Ala)-(R)-isomer OR alliin, (L-Ala)-(S)-isomer OR Allicin OR thio-2-propene-1-sulfinic acid S-allyl ester OR allylthiosulphinic acid allyl ester OR diallyl disulfide-oxide OR allylthiosulfinate OR allimin OR S-allyl cysteine OR diallyl trisulfide OR allyl trisulfide OR allitridin OR allitridum OR allitrida OR Dasuansu OR Allyl sulfide OR Diallylsulfide OR diallyl sulfide OR garlic oil OR ajoene OR 4,5,9-trithiadodeca-1,6,11-triene 9-oxide OR allyl mercaptan OR S-methyl L-Cysteine OR allyl methyl sulfide OR methyl propenyl sulfide OR allylmethylsulfide OR 3-methylthio-1-propene OR Diallyl disulfide OR allyl disulfide OR diallyl disulphide OR allyll disulfide OR allitin OR Garlicin)) AND (TS=(Diabetic Nephropathies) OR AB=(Diabetic Nephropathies OR Nephropathies, Diabetic OR Nephropathy, Diabetic OR Diabetic Nephropathy OR Diabetic Kidney Disease OR Diabetic Kidney Diseases OR Kidney Disease, Diabetic OR Kidney Diseases, Diabetic OR Diabetic Glomerulosclerosis OR Glomerulosclerosis, Diabetic OR Intracapillary Glomerulosclerosis OR Nodular Glomerulosclerosis OR Glomerulosclerosis, Nodular OR Kimmelstiel-Wilson

Syndrome OR Kimmelstiel Wilson Syndrome OR Syndrome, Kimmelstiel-Wilson OR Kimmelstiel-Wilson Disease OR Kimmelstiel Wilson Disease))

6

Search Strategy (Cochrane)
#1 MeSH descriptor: [Diabetic Nephropathies] explode all trees #2 MeSH descriptor: [Garlic] explode all trees #3 (Diabetic Nephropathies OR Nephropathies, Diabetic OR Nephropathy, Diabetic OR Diabetic Nephropathy OR Diabetic Kidney Disease OR Diabetic Kidney Diseases OR Kidney Disease, Diabetic OR Kidney Diseases, Diabetic OR Diabetic Glomerulosclerosis OR Glomerulosclerosis, Diabetic OR Intracapillary Glomerulosclerosis OR Nodular Glomerulosclerosis OR Glomerulosclerosis, Nodular OR Kimmelstiel-Wilson Syndrome OR Kimmelstiel Wilson Syndrome OR Syndrome, Kimmelstiel-Wilson OR Kimmelstiel-Wilson Disease OR Kimmelstiel Wilson Disease):ti,ab,kw #4 (Allium sativum OR garlic OR Alliin OR S allylcysteine sulfoxide OR PCSO OR isoalliin OR Allicin OR allylthiosulphinic acid allyl ester OR diallyl disulfide oxide OR allylthiosulfinate OR allimin OR S allyl cysteine OR diallyl trisulfide OR allyl trisulfide OR allitridin OR allitridum OR allitridi OR Dasuansu OR Allyl sulfide OR diallylsulfide OR diallyl sulfide OR garlic oil OR ajoene OR allyl mercaptan OR S methyl L Cysteine OR allyl methyl sulfide OR methyl propenyl sulfide OR allylmethylsulfide OR Diallyl disulfide OR allyl disulfide OR diallyl disulphide OR allyll disulfide OR allitin OR Garlicin):ti,ab,kw #1 or #3 #2 or #4 #5 and #6

Search Strategy (Embase)
#1'allium sativum':ab,ti OR garlic:ab,ti OR alliin:ab,ti OR 's allylcysteine sulfoxide':ab,ti OR pcso:ab,ti OR isoalliin:ab,ti OR allicin:ab,ti OR 'allylthiosulphinic acid allyl ester':ab,ti OR 'diallyl disulfide oxide':ab,ti OR allylthiosulfinate:ab,ti OR allimin:ab,ti OR 's allyl cysteine':ab,ti OR 'diallyl trisulfide':ab,ti OR 'allyl trisulfide':ab,ti OR allitridin:ab,ti OR allitridum:ab,ti OR allitridi:ab,ti OR dasuansu:ab,ti OR 'allyl sulfide':ab,ti OR diallylsulfide:ab,ti OR 'diallyl sulfide':ab,ti OR 'garlic oil':ab,ti OR ajoene:ab,ti OR 'allyl mercaptan':ab,ti OR 's methyl l cysteine':ab,ti OR 'allyl methyl sulfide':ab,ti OR 'methyl propenyl sulfide':ab,ti OR allylmethylsulfide:ab,ti OR 'diallyl disulfide':ab,ti OR 'allyl disulfide':ab,ti OR 'diallyl disulphide':ab,ti OR 'allyll disulfide':ab,ti OR allitin:ab,ti OR garlicin:ab,ti #2'diabetic nephropathies':ab,ti OR 'nephropathies, diabetic':ab,ti OR 'nephropathy, diabetic':ab,ti OR 'diabetic nephropathy':ab,ti OR 'diabetic kidney disease':ab,ti OR 'diabetic kidney diseases':ab,ti OR 'kidney disease, diabetic':ab,ti OR 'kidney diseases, diabetic':ab,ti OR 'diabetic glomerulosclerosis':ab,ti OR 'glomerulosclerosis, diabetic':ab,ti OR 'intracapillary glomerulosclerosis':ab,ti OR 'nodular glomerulosclerosis':ab,ti OR 'glomerulosclerosis, nodular':ab,ti OR 'kimmelstiel-wilson syndrome':ab,ti OR 'kimmelstiel wilson syndrome':ab,ti OR

'syndrome, kimmelstiel-wilson':ab,ti OR 'kimmelstiel-wilson disease':ab,ti OR 'kimmelstiel wilson disease':ab,ti
#1 AND #2

Search Strategy (CNKI)
(主题: 大蒜(精确))OR(篇关摘: 大蒜 + 蒜 + 蒜氨酸 + S-烯丙基半胱氨酸亚砜 + S-(2-丙烯基)半胱氨酸亚砜 + 异蒜氨酸 + 大蒜素 + 硫代-2-丙烯-1-亚磺酸 S-烯丙基酯 + 烯丙基硫代磺酸烯丙基酯 + 烯丙基二硫代氧化物 + 烯丙基硫代磺酸 + S-烯丙基半胱氨酸 + 二烯丙基三硫化物 + 烯丙基三硫化物(精确))AND((主题: 糖尿病肾病))OR(篇关摘:糖尿病肾病 + 毛细管间性肾小球硬化症 + 糖尿病性肾小球硬化症 + 结节性肾小球硬化症 + 糖尿病肾疾病 + 糖尿病性肾小球硬化症 (精确)))

Search Strategy (CBM)
((“糖尿病肾病“ OR “毛细管间性肾小球硬化症” OR “糖尿病性肾小球硬化症” OR “结节性肾小球硬化症” OR “糖尿病肾疾病” OR “结节性糖尿病性肾小球硬化症”) OR ("糖尿病肾病"[不加权:扩展])) AND ((“大蒜” OR “蒜氨酸” OR “S-烯丙基半胱氨酸亚砜” OR “S-(2-丙烯基)半胱氨酸亚砜” OR “异蒜氨酸” OR “蒜氨酸” OR “大蒜素” OR “硫代-2-丙烯-1-亚磺酸 S-烯丙基酯” OR “烯丙基硫代磺酸烯丙基酯” OR “烯丙基二硫代氧化物” OR “烯丙基硫代磺酸” OR “蒜氨酸” OR “S-烯丙基半胱氨酸” OR “二烯丙基三硫化物” OR “烯丙基三硫化物”) OR (("大蒜辣素"[不加权:扩展]) OR "大蒜油制剂"[不加权:扩展]) OR ("大蒜氨酸"[不加权:扩展]) OR ("大蒜"[不加权:扩展]))

Search Strategy (VIP)
题名或关键词=糖尿病肾病 or 毛细管间性肾小球硬化症 or 糖尿病性肾小球硬化症 or 结节性肾小球硬化症 or 糖尿病肾疾病 or 糖尿病性肾小球硬化症 AND 题名或关键词=大蒜 or 蒜 or 蒜氨酸 or S-烯丙基半胱氨酸亚砜 or 异蒜氨酸 or 蒜氨酸 or 大蒜素 or 硫代-2-丙烯-1-亚磺酸 S-烯丙基酯 or 烯丙基硫代磺酸烯丙基基酯 or 烯丙基二硫代氧化物 or 烯丙基础硫代磺酸 or 蒜氨酸 or S-烯丙基半胱氨酸 or 二烯丙基三硫化物 or 烯丙基三硫化物

Search Strategy (Wanfang)
(主题:(大蒜) or 题名或关键词:(大蒜 or 蒜 or 蒜氨酸 or S-烯丙基半胱氨酸亚砜 or 异蒜氨酸 or 蒜氨酸 or 大蒜素 or 硫代-2-丙烯-1-亚磺酸 S-烯丙基酯 or 烯丙基硫代磺酸烯丙基基酯 or 烯丙基二硫代氧化物 or 烯丙基础硫代磺酸 or 蒜氨酸 or S-烯丙基半胱氨酸 or 二烯丙基三硫化物 or 烯丙基三硫化物)) and (主题:(糖尿病肾病) or 题名或关键词:(糖尿病肾病 or 毛细管间性肾小球硬化症 or 糖尿病性肾小球硬化症 or 结节性肾小球硬化症 or 糖尿病肾疾病 or 糖尿病性肾小球硬化症))

Supplementary Table 2 Risk of bias summary

Study	A	B	C	D	E	F	G	H	I	J	Total
Al-Qattan 2008	?	?	?	+	?	-	?	+	+	+	4
Arellano-Buendía 2018	?	?	?	+	?	-	?	+	+	+	4
Arellano-Buendía 2020	?	?	?	+	?	?	?	-	+	+	3
Hfaiedh 2013	?	?	?	+	?	-	?	+	+	+	4
Huang 2016	+	+	?	+	?	-	?	+	+	+	6
Huang 2017	?	+	?	?	?	-	?	+	+	+	4
Jiang 2019	?	?	?	?	?	-	?	-	+	+	2
Kemmak 2011	?	?	?	+	?	-	?	+	+	+	4
Luan 2017(A)	?	?	?	?	?	-	?	+	+	+	3
Luan 2017(B)	?	?	?	?	?	-	?	+	+	+	3
Mariee 2009	?	?	?	+	?	-	?	+	+	+	4
Mong 2012	?	+	?	+	?	-	?	+	+	+	5
Nasiri 2017	?	?	?	+	?	-	?	+	+	+	4
Shen 2022	-	?	?	+	?	-	?	+	+	+	4
Shiju(A)	?	?	?	+	?	-	?	+	+	+	4
Shiju(B)	?	?	?	+	?	-	?	+	+	+	4
Thomson 2013	?	-	?	+	?	?	?	?	+	+	3
Venkataiah 2016	?	?	?	+	?	-	?	+	+	+	4
Yin 2007	?	+	?	+	?	-	?	+	+	+	5
Yu 2008	?	+	?	?	?	-	?	+	+	+	4
Yu 2010	?	?	?	?	?	-	?	+	+	+	3
Yuvashree 2020	?	?	?	+	?	-	?	+	+	+	4
Zhou 2021	?	?	?	+	?	-	?	+	+	+	4
Ziamajidi 2017	?	+	?	+	?	-	?	+	+	+	5

Note: Selection bias: A, Sequence generation; B, Baseline characteristics; C, Allocation concealment. Performance bias: D, Random housing; E, Blinding. Detection bias: F, Random outcome assessment; G, Blinding. Attrition bias: H, Incomplete outcome data. Reporting bias: I, Selective outcome reporting. Other: J, Other sources of bias. ?, unclear; +, low risk; -, high risk.

Supplementary Table 3 The subgroup analysis of BUN, SCR, 24-hour urine volume, 24h UAER, and BG.

Subgroup 1: Animal species

Outcomes	Group	No. of animals	SMD (95% CI)	*P* value	I^2
BUN	Rats	11	−2.54 [−3.59, −1.48]	＜0.00001	83%
	Mice	5	−7.11[−10.27, −3.94]	＜0.0001	85%
	Total	16	−3.86 [−5.04, −2.69]	<0.00001	88%
Scr	Rats	14	−1.93 [−2.96, −0.89]	=0.0003	88%
	Mice	1	−11.90 [−18.71, −5.09]	=0.0006	/
	Total	15	−2.13 [−3.19, −1.07]	<0.0001	88%
24-hour urine volume	Rats	8	−2.53 [−4.13, −0.93]	=0.002	86%
	Mice	4	−2.92 [−3.55, −2.28]	<0.00001	0%
	Total	12	−2.58 [−3.68, −1.48]	<0.00001	84%
24h UAER	Rats	10	−2.91 [−4.36, −1.46]	<0.0001	91%
	Mice	1	−4.52 [−7.34, −1.69]	=0.002	/
	Total	11	−3.03 [−4.43, −1.64]	<0.0001	91%
BG	Rats	19	−2.79 [−3.67, −1.90]	＜0.00001	86%
	Mice	4	−7.31 [−10.52, −4.10]	＜0.00001	85%
	Total	23	−3.60 [−4.58, −2.62]	＜0.00001	89%

Subgroup 2: Model category

Outcomes	Group	No. of animals	SMD (95% CI)	*P* value	I^2
BUN	T1DM	14	−1.75 [−2.09, -1.40]	＜0.00001	90%
	T2DM	5	−2.52 [-3.54, -1.51]	＜0.0001	80%
	Total	16	−3.86 [−5.04, −2.69]	<0.00001	88%
Scr	T1DM	10	−1.96 [-3.10, -0.82]	=0.0008	85%
	T2DM	5	−2.18 [−4.64, 0.29]	=0.08	92%
	Total	15	−2.13 [−3.19, −1.07]	<0.0001	88%
24-hour urine volume	T1DM	10	−2.26 [−3.21, −1.31]	＜0.00001	82%
	T2DM	2	−24.05 [−33.71, −14.38]	＜0.00001	0%
	Total	12	−2.58 [−3.68, −1.48]	<0.00001	84%
24h UAER	T1DM	7	−2.67 [−3.83, −1.51]	< 0.00001	81%
	T2DM	3	−5.21 [−7.10, −3.32]	＜0.00001	54%
	Total	10	−3.42 [−4.60, −2.24]	＜0.00001	84%
BG	T1DM	16	−3.45 [−4.60, −2.31]	＜0.00001	90%
	T2DM	7	−4.02 [−6.04, −2.01]	＜0.0001	86%
	Total	23	−3.60 [−4.58, −2.62]	＜0.00001	89%

Subgroup 3: Garlic category

Outcomes	Group	NO. of Animals	SMD (95% CI)	*P* value	I^2
BUN	Garlic products	5	−3.95 [−6.20, −1.69]	=0.0006	78%
	Garlic components	11	−3.89 [−5.32, −2.45]	＜0.00001	91%
	Total	16	−3.86 [−5.04, −2.69]	<0.00001	88%
Scr	Garlic products	6	−1.79 [−3.83, 0.26]	=0.09	89%
	Garlic components	9	−2.36 [−3.69, −1.04]	=0.0005	89%
	Total	15	−2.13 [−3.19, −1.07]	<0.0001	88%
24-hour urine volume	Garlic products	5	−6.43 [−10.34, −2.52]	=0.001	88%
	Garlic components	7	−1.84 [−2.86, −0.83]	=0.0004	81%
	Total	12	−2.58 [−3.68, −1.48]	<0.00001	84%
24h UAER	Garlic products	5	−1.81 [−3.81, 0.19]	0.08	91%
	Garlic	6	−3.94 [−5.42, −2.46]	<0.00001	80%

	components				
	Total	11	−3.03 [−4.43, −1.64]	<0.0001	91%
BG	Garlic products	11	−3.56 [−4.96, −2.17]	＜0.00001	85%
	Garlic components	12	−3.67 [−5.09, −2.24]	＜0.00001	92%
	Total	23	−3.60 [−4.58, −2.62]	＜0.00001	89%

Subgroup 4: Garlic dose (mg/kg/day)

Outcomes	Group	No. of animals	SMD (95% CI)	*P* value	I^2
BUN	＜100	5	−2.01 [−3.49, −0.54]	=0.007	89%
	100-400	5	−6.02 [−9.25, −2.80]	=0.0003	85%
	＞400	6	−4.53 [−6.74, −2.33]	＜0.0001	87%
	Total	16	−3.86 [−5.04, −2.69]	<0.00001	88%
Scr	＜100	6	−1.75 [−3.11, −0.39]	=0.01	89%
	100-400	4	−5.34 [−9.57, −1.11]	=0.01	90%
	＞400	5	−1.29 [−3.42, 0.84]	=0.23	89%
	Total	15	−2.13 [−3.19, −1.07]	<0.0001	88%
24-hour urine volume	＜100	3	−0.50 [−1.07, 0.07]	=0.09	0%
	100-400	3	−3.28 [−4.69, −1.87]	＜0.00001	39%
	＞400	5	−4.56 [−6.80, −2.32]	＜0.0001	81%
	Total	11	−2.78 [−4.02, −1.54]	＜0.0001	86%
24h UAER	＜100	4	−4.43 [−6.45, −2.42]	＜0.0001	85%
	100-400	2	−2.91 [−5.34, −0.47]	=0.02	62%
	＞400	4	−1.69 [−4.06, 0.69]	=0.16	92%
	Total	10	−3.12 [−4.66, −1.59]	＜0.0001	91%
BG	＜100	8	−2.51 [-3.80, -1.23]	=0.0001	86%
	100-400	5	−3.83 [−6.42, −1.24]	=0.004	91%
	＞400	9	−5.11 [−7.29, −2.92]	＜0.00001	92%
	Total	22	−3.69 [−4.72, −2.66]	＜0.00001	90%

Subgroup 5: Duration (weeks)

Outcomes	Group	No. of animals	SMD (95% CI)	*P* value	I^2
BUN	＜10	8	−3.22 [−4.63, −1.81]	＜0.00001	84%
	⩾10	8	−4.84 [−6.89, −2.79]	＜0.00001	91%
	Total	16	−3.86 [−5.04, −2.69]	<0.00001	88%
Scr	＜10	9	−2.08 [−3.69, −0.46]	=0.01	89%
	⩾10	6	−2.36 [−3.73, −0.98]	=0.0008	86%
	Total	15	−2.13 [−3.19, −1.07]	<0.0001	88%
24-hour urine volume	＜10	7	−2.46 [−3.59, −1.33]	＜0.0001	81%
	⩾10	5	−3.64 [−6.55, −0.74]	=0.01	89%
	Total	12	−2.58 [−3.68, −1.48]	<0.00001	84%
24h UAER	＜10	6	−1.53 [−3.02, −0.03]	=0.05	88%
	⩾10	5	−4.99 [−7.03, −2.94]	＜0.00001	84%
	Total	11	−3.03 [−4.43, −1.64]	＜0.0001	91%
BG	＜10	13	−3.61 [−4.98, −2.24]	=0.01	89%
	⩾10	10	−3.68 [−5.19, −2.17]	=0.0008	86%
	Total	23	−3.60 [−4.58, −2.62]	＜0.00001	89%

Subgroup 6: Route of administration

Outcomes	Group	No. of animals	SMD (95% CI)	*P* value	I^2
BUN	By intragastric	9	−1.84 [−2.81, −0.88]	=0.0002	74%
	By intraperitoneal injection	3	−4.52 [−6.27, −2.77]	＜0.00001	58%
	By free access with meals	4	−7.42 [−11.32, −3.53]	=0.0002	89%
	Total	16	−3.86 [−5.04, −2.69]	<0.00001	88%
Scr	By intragastric	11	−1.01 [−1.92, −0.09]	=0.03	81%
	By intraperitoneal injection	4	−4.63 [−5.54, −3.73]	＜0.00001	0%
	By free access with meals	0	/	/	/
	Total	15	−2.13 [−3.19, −1.07]	<0.0001	88%
24-hour urine volume	By intragastric	6	−1.25 [−2.68, 0.18]	=0.09	80%
	By intraperitoneal injection	2	−5.01 [−6.60, −3.43]	＜0.00001	0%
	By free access with meals	4	−2.92 [−3.55, −2.28]	＜0.00001	0%
	Total	12	−2.58 [−3.68, −1.48]	<0.00001	84%
24h UAER	By intragastric	8	−3.00 [−4.75, −1.25]	=0.0008	91%
	By intraperitoneal injection	3	−3.24 [−6.18, −0.30]	=0.03	93%
	By free access with meals	0	/	/	/
	Total	11	−3.03 [−4.43, −1.64]	<0.0001	91%
BG	By intragastric	15	−1.82 [−2.53, −1.11]	＜0.00001	74%
	By intraperitoneal injection	4	−6.47 [−9.83, −3.12]	=0.0002	91%
	By free access with meals	4	−7.31 [−10.52, −4.10]	＜0.00001	85%
	Total	23	−3.60 [−4.58, −2.62]	＜0.00001	89%

Supplementary Table 4 Meta-regression analysis of BUN, Scr, 24 h urine volume, 24h UAER, and BG.

Table 4.1 Characteristics for BUN

Outcomes	Characteristics (covariates) (*n*=4)		coefficient	95% CI	*P* value
BUN	Study quality score		-0.58	-2.26, 1.11	0.50
	No. sample size		0.08	-0.16, 0.32	0.68
	Region[a]	China	-1.69	-7.18, 3.80	0.55
		Others	-1.59	-7.83, 4.65	0.62
	Year of Pub [b]		3.84	0.88, 6.79	0.01

P value showed that the Year of Publication of the Characteristics had an impact on result of BUN. (Region[a]: The region divided into Western, China, and others. When performing meta-regression analysis, the Western was used as a reference object. Year of Pub.[b]: Year of publication divided into 2007 to 2016, 2017 to 2022)

Table 4.2 Characteristics for Scr

Outcomes	Characteristics (covariates) (*n*=4)		coefficient	95% CI	*P* value
Scr	Study quality score		1.65	0.25, 3.06	0.02
	No. sample size		-0.07	-0.32, 0.18	0.58
	Region[a]	China	-1.79	-5.34, -1.76	0.32
		Others	2.04	-1.55, 5.63	0.27
	Year of Pub.[b]		0.24	-3.00, 3.47	0.89

P value showed that the Study quality score of the Characteristics had an impact on result of Scr. (Region[a]: The region divided into Western, China, and others. When performing meta-regression analysis, the Western was used as a reference object. Year of Pub.[b]: Year of publication divided into 2007 to 2016, 2017 to 2022)

Table 4.3 Characteristics for 24h urine volume

Outcomes	Characteristics (covariates) (*n*=4)		coefficient	95% CI	*P* value
24-hour urine volume	Study quality score		-0.10	-1.95, 1.75	0.92
	No. sample size		0.11	-0.13, 0.36	0.36
	Region[a]	China	0.93	-5.83, 7.69	0.79
		Others	-8.63	-16.95, -0.30	0.04
	Year of Pub.[b]		2.71	1.39, 4.03	0.00

P value showed that the (1) Region (2) Year of Publication of the Characteristics had an impact on result of 24h urine volume. ((Region[a]: The region divided into Western, China, and others. When performing meta-regression analysis, the Western was used as a reference object. Year of Pub.[b]: Year of publication divided into 2007 to 2016, 2017 to 2022)

Table 4.4 Characteristics for 24h UAER

Outcomes	Characteristics (covariates) (*n*=4)		coefficient	95% CI	*P* value
24h UAER	Study quality score		-1.46	-3.03, 0.11	0.07
	No. sample size		0.07	-0.27, 0.42	0.68
	Region[a]	China	-2.60	-8.63, 3.42	0.40
		Others	-4.81	-12.03, 2.42	0.19
	Year of Pub.[b]		-0.68	-4.24, 2.88	0.71

P value showed that no item had any impact on result of 24h UAER. (Region[a]: The region divided into Western,

China, and others. When performing meta-regression analysis, the Western was used as a reference object. Year of Pub.[b]: Year of publication divided into 2007 to 2016, 2017 to 2022)

Table 4.5 Characteristics for BG

Outcomes	Characteristics (covariates) (*n*=4)		coefficient	95% CI	*P* value
BG	Study quality score		-0.59	-2.39, 1.20	0.52
	No. sample size		-0.27	-0.49, -0.06	0.01
	Region[a]	China	0.14	-4.04, 4.32	0.95
		Others	0.70	-3.40, 4.81	0.74
	Year of Pub.[b]		2.92	-.002, 5.84	0.05

P value showed that the Sample size had an impact on result of BG. (Region[a]: The region divided into Western, China, and others. When performing meta-regression analysis, the Western was used as a reference object. Year of Pub.[b]: Year of publication divided into 2007 to 2016, 2017 to 2022)

BUN: Blood urea nitrogen; SCR: serum creatinine; UAER: urinary albumin excretion rates, BG: blood glucose