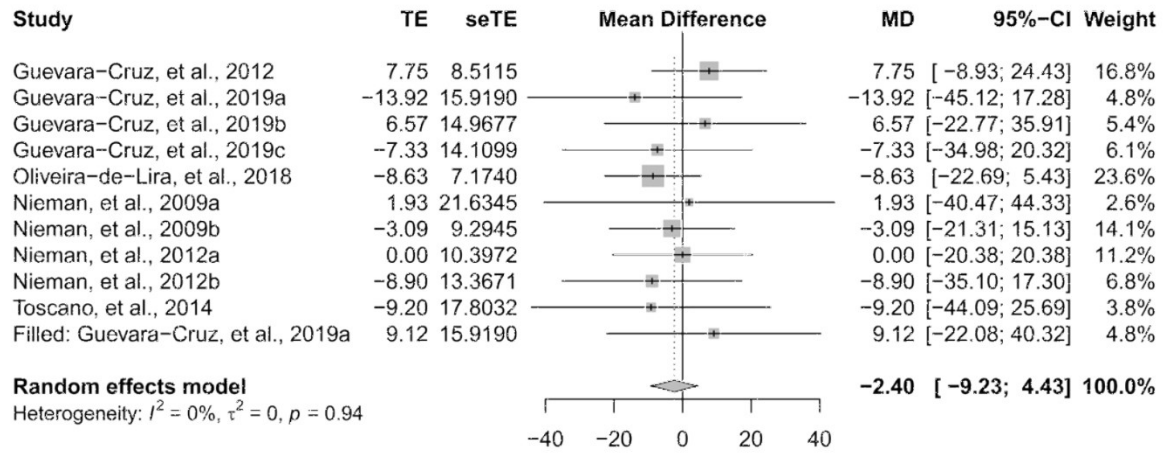
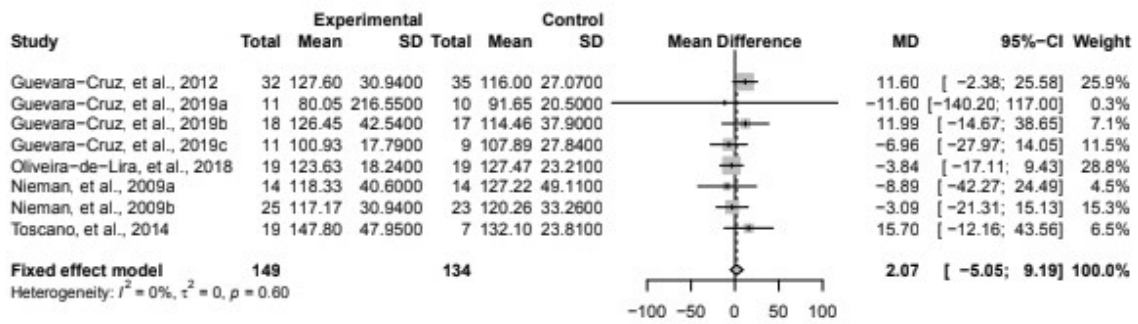


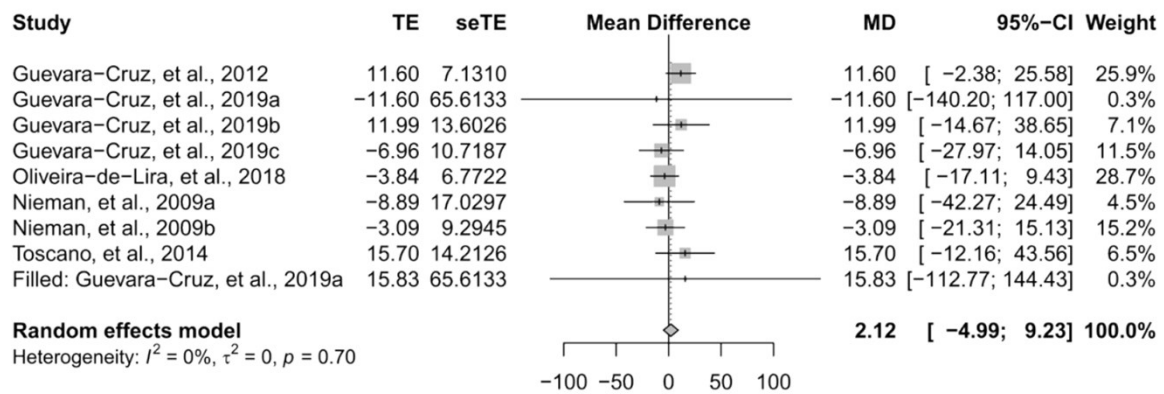
**Figure S1.** Forest plot of the mean difference in TC.



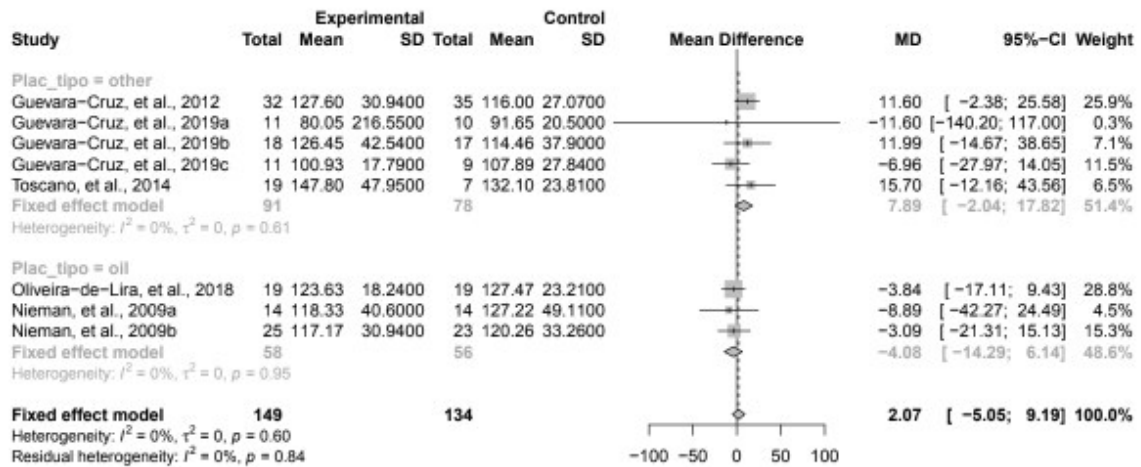
**Figure S2. Forest plot of the mean difference in TC according to the trim and fill method.**



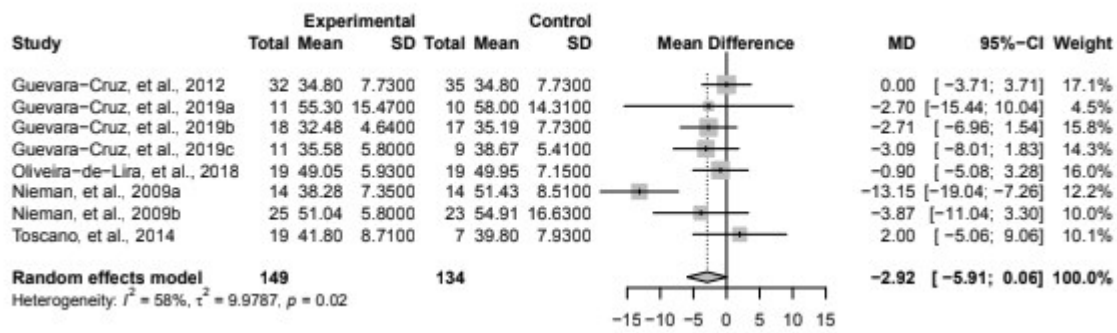
**Figure S3.** Forest plot of the mean difference in LDL with Chia intake.



**Figure S4. Forest plot of the mean difference in LDL according to the trim and fill method.**



**Figure S5.** Subgroups analysis of the comparator source type in the LDL.



**Figure S6.** Forest plot of the mean difference in HDL with Chia intake.

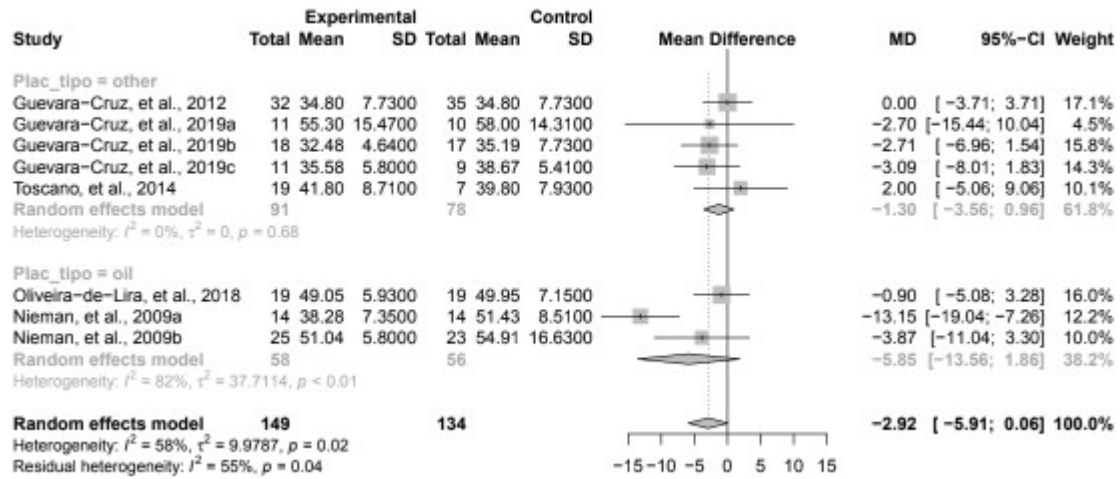
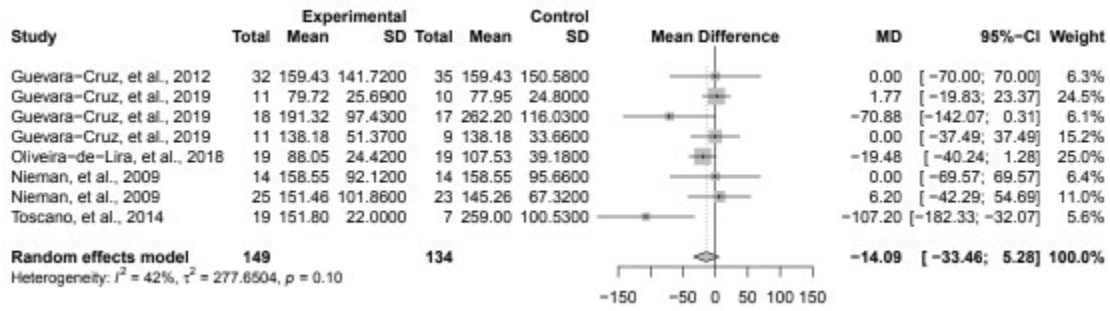
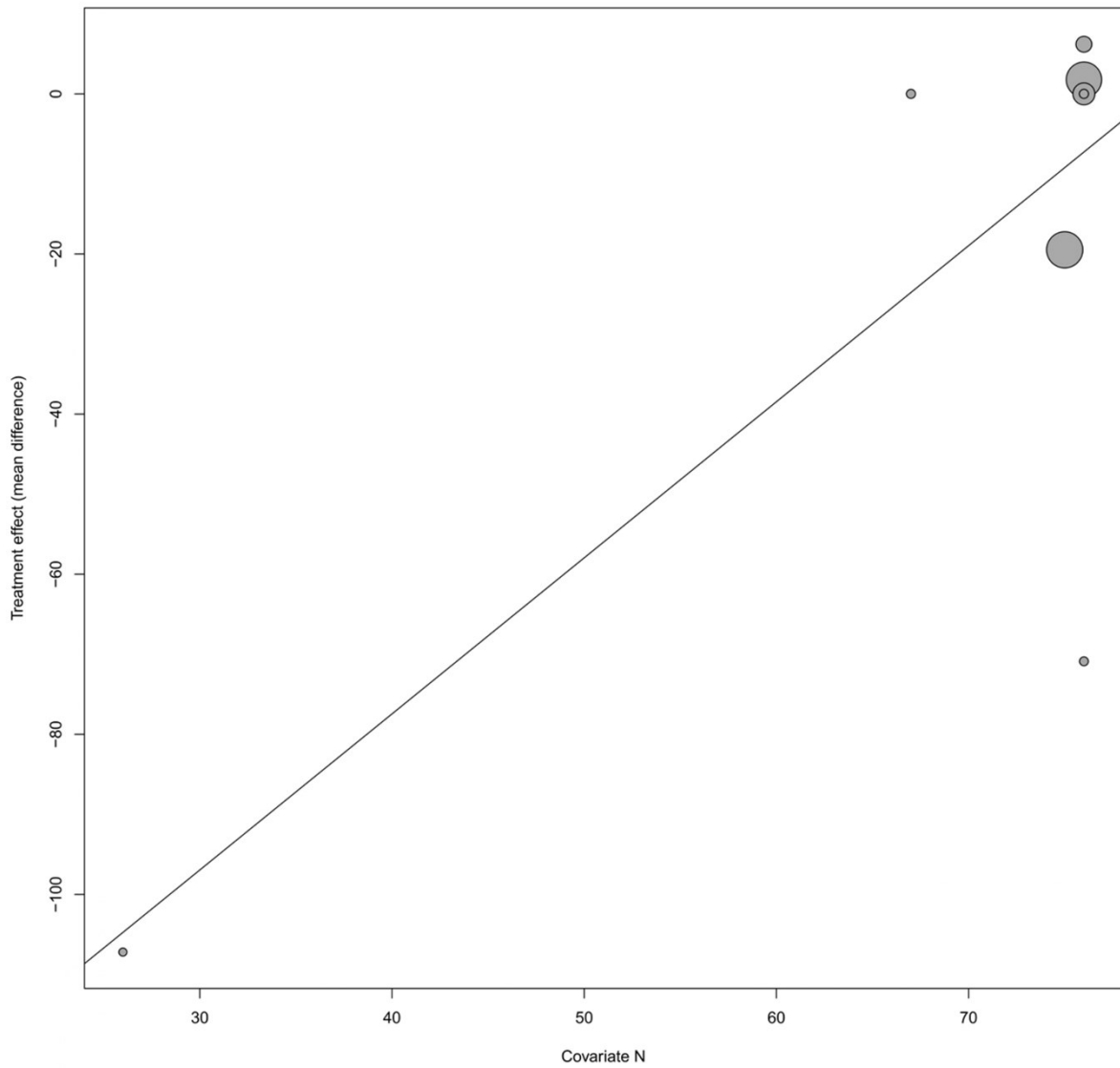


Figure S7. Subgroups analysis of the comparator source type in the HDL.



**Figure S8.** Forest plot of the mean difference in TG.





**Figure S9.** Bubble plot for meta-regression of relation between the treatment effect about triglycerides and the covariate of the number of individuals.

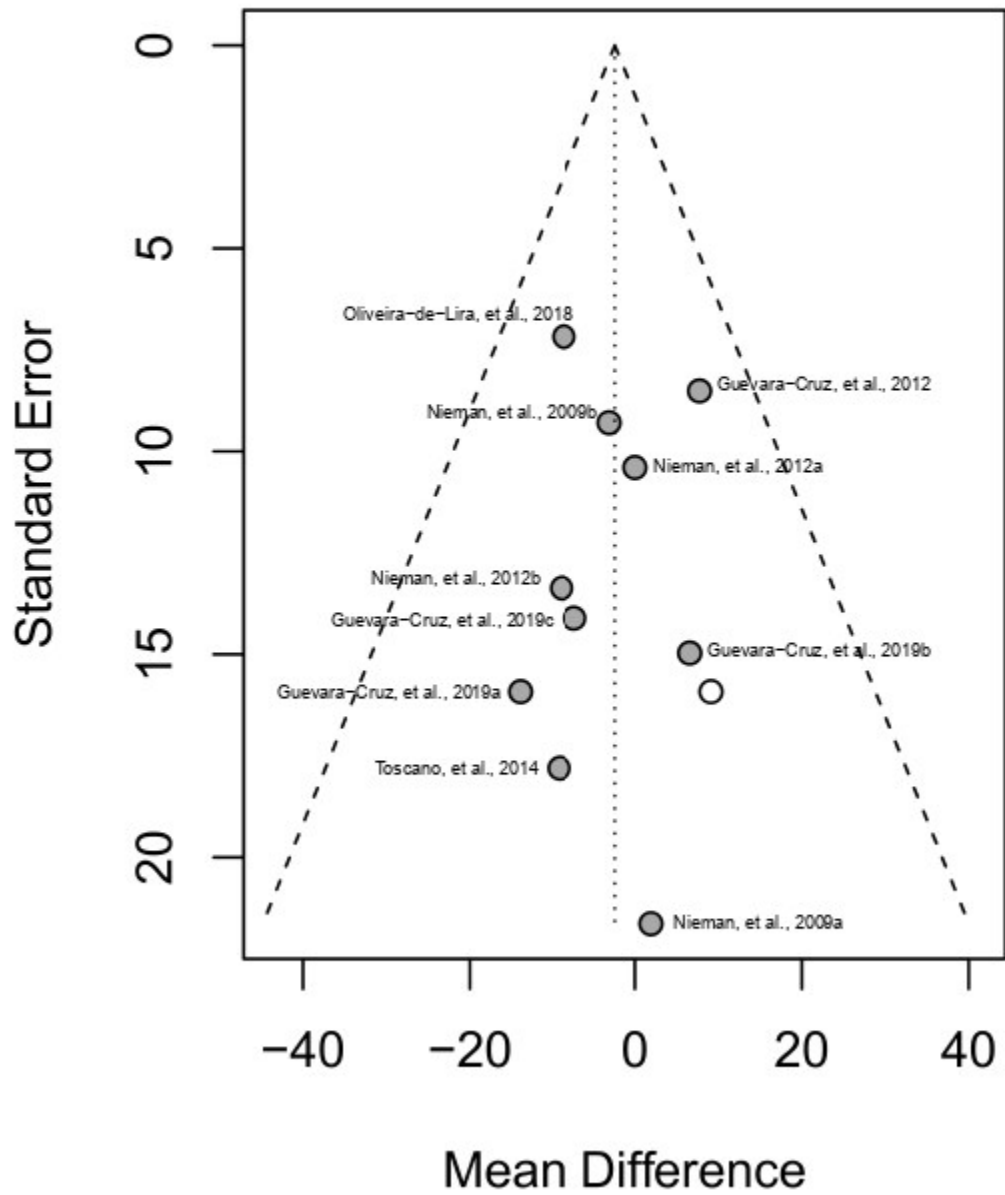
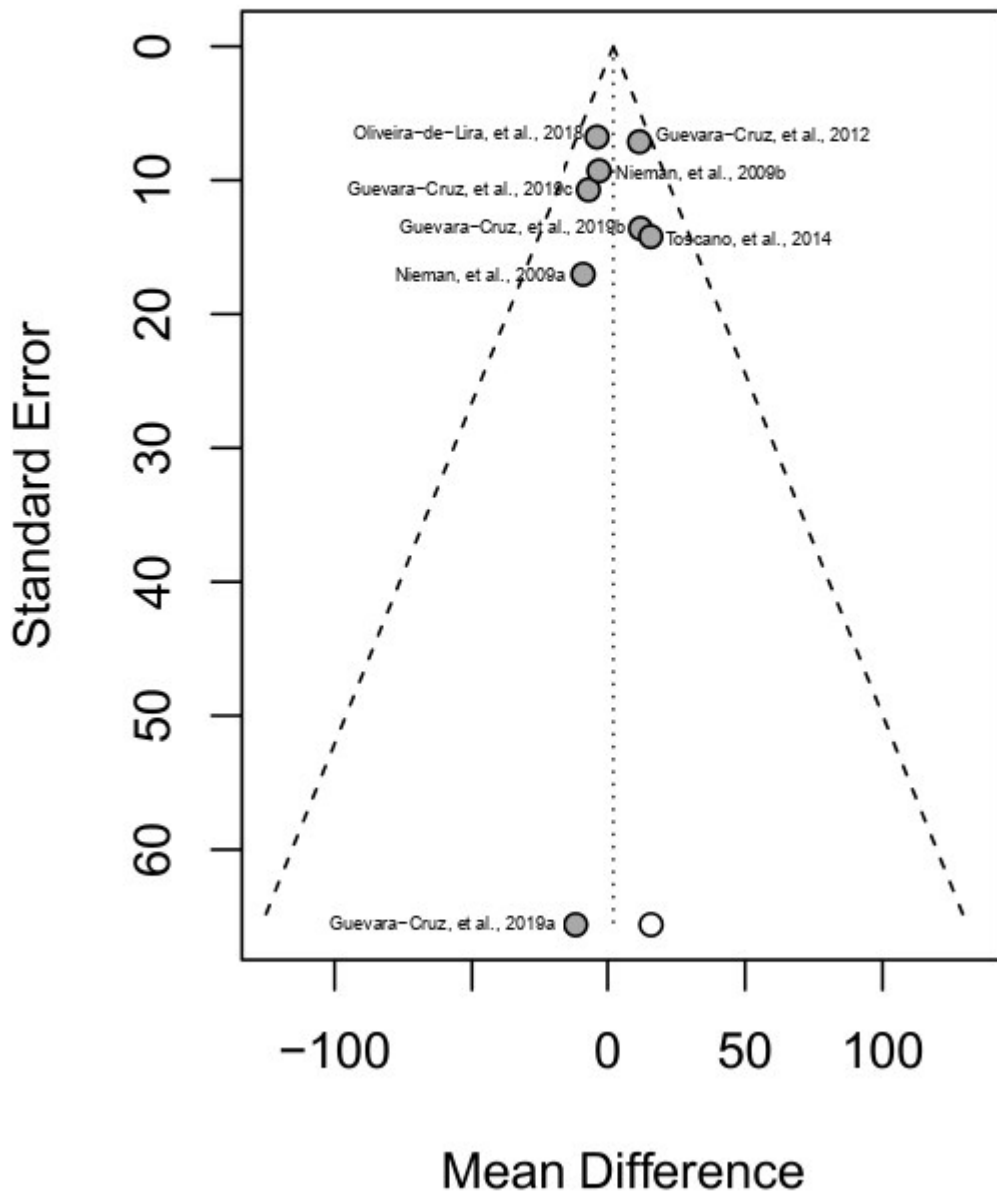
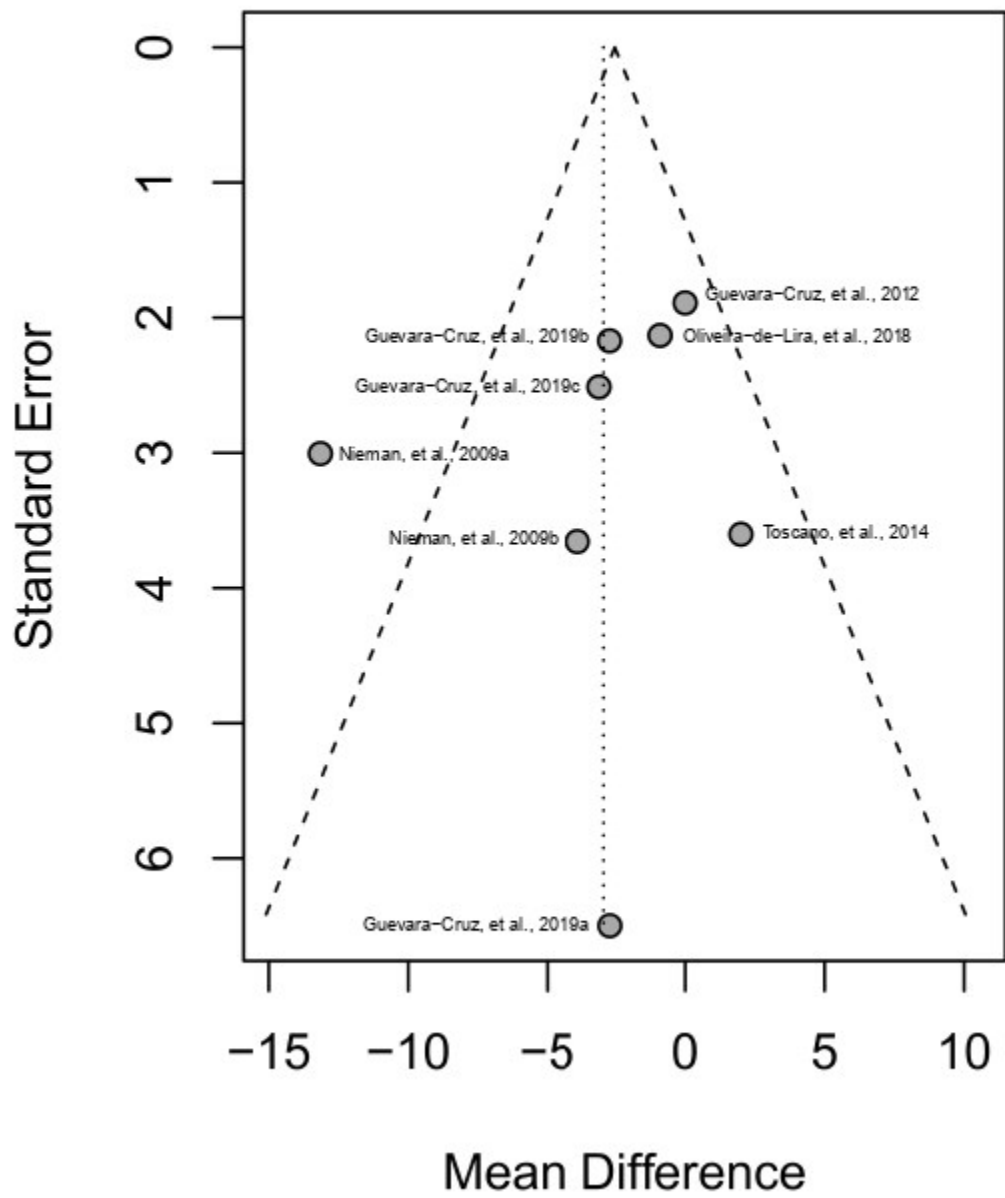


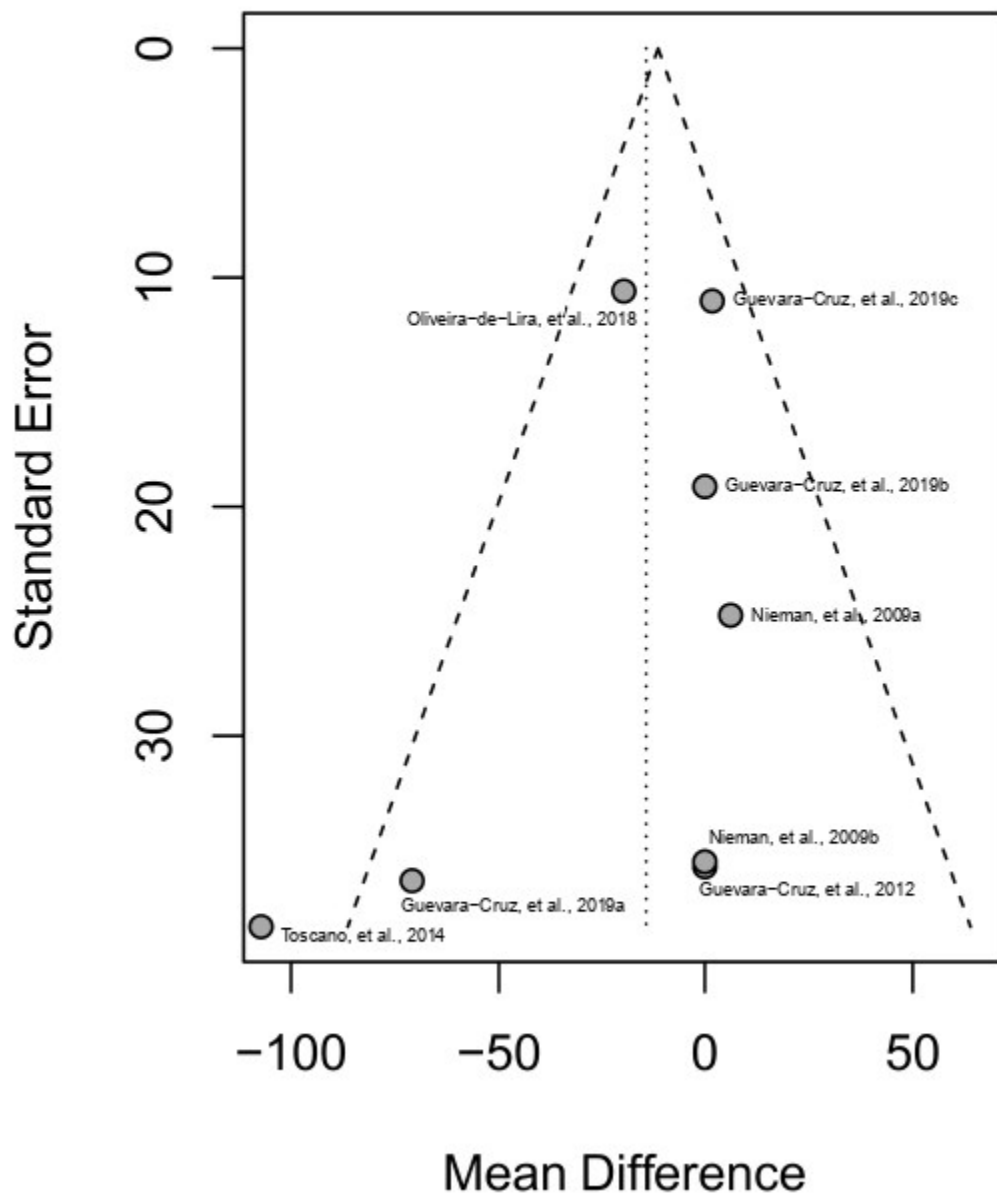
Figure S10. Funnel plot for the random effects meta-analysis of the TC according to the trim and fill method.



**Figure S11.** Funnel plot for the random effects meta-analysis of the LDL according to the trim and fill method.



**Figure S12.** Funnel plot for the random effects meta-analysis of the HDL.



**Figure S13.** Funnel plot for the random effects meta-analysis of the TG.

**Table S1.** Elements of the systematic review in the PICOS structure.

<b>P</b>	<b>Population</b>	Adults over 18 years of age.
<b>I</b>	<b>Intervention</b>	Chia ( <i>Salvia hispanica</i> ).
<b>C</b>	<b>Comparison</b>	Placebo, other sources of fatty acids or no treatment.
<b>O</b>	<b>Outcomes</b>	Lipid profile and serum omega-3 fatty acids.
<b>S</b>	<b>Study Design</b>	Randomized clinical trials.

**Table S2.** Search strategy for each database.

Database	Search strategy
<p><b>PUBMED</b></p>	<p>((((("Chia"[All Fields] OR "Salvia hispanica"[All Fields]) OR "Chia oil"[All Fields]) OR "Salba-chia"[All Fields]) OR "salvia hispanica l"[All Fields]) OR "Chia seed"[All Fields]) OR (("Seeds"[MeSH Terms] OR "Seeds"[All Fields]) AND ("Salvia"[MeSH Terms] OR "Salvia"[All Fields]))) AND (((((((((((((((((((((((("fatty acids, omega-3"[MeSH Terms] OR ("fatty"[All Fields] AND "acids"[All Fields]) AND "omega 3"[All Fields])) OR "omega-3 fatty acids"[All Fields]) OR "fatty acids omega 3"[All Fields]) OR (((("fatty acids, omega-3"[MeSH Terms] OR ("fatty"[All Fields] AND "acids"[All Fields]) AND "omega 3"[All Fields])) OR "omega-3 fatty acids"[All Fields]) OR "fatty acids omega 3"[All Fields])) OR (((("fatty acids, omega-3"[MeSH Terms] OR ("fatty"[All Fields] AND "acids"[All Fields]) AND "omega 3"[All Fields])) OR "omega-3 fatty acids"[All Fields]) OR "n 3 fatty acids"[All Fields])) OR (((("fatty acids, omega-3"[MeSH Terms] OR ("fatty"[All Fields] AND "acids"[All Fields]) AND "omega 3"[All Fields])) OR "omega-3 fatty acids"[All Fields]) OR "n 3 polyunsaturated fatty acid"[All Fields])) OR (((("fatty acids, omega-3"[MeSH Terms] OR ("fatty"[All Fields] AND "acids"[All Fields]) AND "omega 3"[All Fields])) OR "omega-3 fatty acids"[All Fields]) OR "n 3 polyunsaturated fatty acid"[All Fields])) OR (((("fatty acids, omega-</p>





&quot;omega 3&quot;,[All Fields])) OR &quot;omega-3 fatty acids&quot;,[All Fields]) OR ((&quot;n3&quot;,[All Fields] AND &quot;fatty&quot;,[All Fields]) AND &quot;acid&quot;,[All Fields])) OR &quot;n3 fatty acid&quot;,[All Fields])) OR (((&quot;fatty acids, omega-3&quot;,[MeSH Terms] OR ((&quot;fatty&quot;,[All Fields] AND &quot;acids&quot;,[All Fields]) AND &quot;omega 3&quot;,[All Fields])) OR &quot;omega-3 fatty acids&quot;,[All Fields]) OR ((&quot;fatty&quot;,[All Fields] AND &quot;acid&quot;,[All Fields]) AND &quot;n3&quot;,[All Fields])) OR &quot;fatty acid n3&quot;,[All Fields])) OR ((&quot;eicosapentaenoic acid&quot;,[MeSH Terms] OR (&quot;eicosapentaenoic&quot;,[All Fields] AND &quot;acid&quot;,[All Fields])) OR &quot;eicosapentaenoic acid&quot;,[All Fields])) OR ((&quot;eicosapentaenoic acid&quot;,[MeSH Terms] OR (&quot;eicosapentaenoic&quot;,[All Fields] AND &quot;acid&quot;,[All Fields])) OR &quot;eicosapentaenoic acid&quot;,[All Fields])) OR (((&quot;eicosapentaenoic acid&quot;,[MeSH Terms] OR (&quot;eicosapentaenoic&quot;,[All Fields] AND &quot;acid&quot;,[All Fields])) OR &quot;eicosapentaenoic acid&quot;,[All Fields]) OR (&quot;eicosapentanoic&quot;,[All Fields] AND &quot;acid&quot;,[All Fields])) OR &quot;eicosapentanoic acid&quot;,[All Fields])) OR (((&quot;eicosapentaenoic acid&quot;,[MeSH Terms] OR (&quot;eicosapentaenoic&quot;,[All Fields] AND &quot;acid&quot;,[All Fields])) OR &quot;eicosapentaenoic acid&quot;,[All Fields]) OR (&quot;acid&quot;,[All Fields] AND &quot;eicosapentanoic&quot;,[All Fields])) OR &quot;acid eicosapentanoic&quot;,[All Fields])) OR (((&quot;eicosapentaenoic acid&quot;,[MeSH Terms] OR (&quot;eicosapentaenoic&quot;,[All Fields] AND &quot;acid&quot;,[All Fields])) OR &quot;eicosapentaenoic acid&quot;,[All Fields]) OR &quot;omega 3 eicosapentaenoic acid&quot;,[All Fields])) OR (((&quot;eicosapentaenoic acid&quot;,[MeSH Terms] OR (&quot;eicosapentaenoic&quot;,[All Fields] AND &quot;acid&quot;,[All Fields])) OR &quot;eicosapentaenoic acid&quot;,[All Fields]) OR &quot;omega 3 eicosapentaenoic acid&quot;,[All Fields])) OR (((&quot;eicosapentaenoic acid&quot;,[MeSH Terms] OR (&quot;eicosapentaenoic&quot;,[All Fields] AND &quot;acid&quot;,[All Fields])) OR &quot;eicosapentaenoic acid&quot;,[All Fields]) OR (&quot;timnodonic&quot;,[All Fields] AND &quot;acid&quot;,[All Fields])) OR &quot;timnodonic acid&quot;,[All Fields])) OR



acid&quot;[MeSH Terms] OR (&quot;alpha linolenic&quot;[All Fields] AND &quot;acid&quot;[All Fields])) OR  
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 linolenic acid&quot;[All Fields]) OR ((&quot;alpha&quot;[All Fields] AND &quot;linolenic&quot;[All Fields] AND  
 &quot;acid&quot;[All Fields])) OR &quot;alpha linolenic acid&quot;[All Fields])) OR (((&quot;alpha-linolenic  
 acid&quot;[MeSH Terms] OR (&quot;alpha linolenic&quot;[All Fields] AND &quot;acid&quot;[All Fields])) OR  
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 linolenic acid&quot;[All Fields]) OR &quot;linolenate&quot;[All Fields]) OR &quot;linolenic&quot;[All Fields])) OR  
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 Fields] AND  
 &quot;acid&quot;[All Fields])) OR &quot;linolenic acid&quot;[All Fields])) AND  
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 AND &quot;blood&quot;[All Fields])) OR &quot;serum blood&quot;[All Fields])) OR (((&quot;plasma&quot;[MeSH  
 Terms] OR &quot;plasma&quot;[All Fields]) OR &quot;plasmas&quot;[All Fields]) OR &quot;plasma s&quot;[All  
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OR "plasma"[All Fields]) OR "plasmas"[All Fields]) OR "plasma s"[All Fields])  
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Fields]) OR "biomarker"[All Fields]) OR ((("biomarker s"[All Fields] OR

&quot;biomarkers&quot;[MeSH Terms]) OR &quot;biomarkers&quot;[All Fields]) OR &quot;biomarker&quot;[All Fields])) OR ((&quot;erythrocyte membrane&quot;[MeSH Terms] OR (&quot;erythrocyte&quot;[All Fields] AND &quot;membrane&quot;[All Fields])) OR &quot;erythrocyte membrane&quot;[All Fields])) OR ((&quot;erythrocyte membrane&quot;[MeSH Terms] OR (&quot;erythrocyte&quot;[All Fields] AND &quot;membrane&quot;[All Fields])) OR &quot;erythrocyte membrane&quot;[All Fields])) OR (((&quot;erythrocytes&quot;[MeSH Terms] OR &quot;erythrocytes&quot;[All Fields]) OR (&quot;red&quot;[All Fields] AND &quot;cell&quot;[All Fields])) OR &quot;red cell&quot;[All Fields])) OR (((((((((((((((((((((((&quot;lipoprotein s&quot;[All Fields] OR &quot;lipoproteine&quot;[All Fields]) OR &quot;lipoproteins&quot;[MeSH Terms]) OR &quot;lipoproteins&quot;[All Fields]) OR &quot;lipoprotein&quot;[All Fields]) OR (((&quot;lipoprotein s&quot;[All Fields] OR &quot;lipoproteine&quot;[All Fields]) OR &quot;lipoproteins&quot;[MeSH Terms]) OR &quot;lipoproteins&quot;[All Fields]) OR &quot;lipoprotein&quot;[All Fields])) OR (((&quot;cholesterol&quot;[MeSH Terms] OR &quot;cholesterol&quot;[All Fields]) OR &quot;cholesterol s&quot;[All Fields]) OR &quot;cholesterole&quot;[All Fields]) OR &quot;cholesterols&quot;[All Fields])) OR (((&quot;cholesterol, hdl&quot;[MeSH Terms] OR (&quot;cholesterol&quot;[All Fields] AND &quot;hdl&quot;[All Fields])) OR &quot;hdl cholesterol&quot;[All Fields]) OR (&quot;cholesterol&quot;[All Fields] AND &quot;hdl&quot;[All Fields])) OR &quot;cholesterol hdl&quot;[All Fields])) OR (((&quot;cholesterol, hdl&quot;[MeSH Terms] OR (&quot;cholesterol&quot;[All Fields] AND &quot;hdl&quot;[All Fields])) OR &quot;hdl cholesterol&quot;[All Fields]) OR (((&quot;high&quot;[All Fields] AND &quot;density&quot;[All Fields]) AND &quot;lipoprotein&quot;[All Fields]) AND &quot;cholesterol&quot;[All Fields])) OR &quot;high density lipoprotein cholesterol&quot;[All Fields])) OR (((&quot;cholesterol, ldl&quot;[MeSH Terms] OR (&quot;cholesterol&quot;[All Fields] AND &quot;ldl&quot;[All Fields])) OR &quot;ldl cholesterol&quot;[All Fields]) OR

(&quot;cholesterol&quot;,[All Fields] AND &quot;ldl&quot;,[All Fields])) OR &quot;cholesterol ldl&quot;,[All Fields]))  
OR (((&quot;cholesterol, ldl&quot;,[MeSH Terms] OR (&quot;cholesterol&quot;,[All Fields] AND  
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AND &quot;ldl&quot;,[All Fields])) OR &quot;cholesterol ldl&quot;,[All Fields])) OR (((&quot;cholesterol,  
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cholesterol&quot;,[All Fields]) OR (((&quot;low&quot;,[All Fields] AND &quot;density&quot;,[All Fields]) AND  
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cholesterol&quot;,[All Fields])) OR (((&quot;cholesterol, ldl&quot;,[MeSH Terms] OR (&quot;cholesterol&quot;,[All  
Fields] AND &quot;ldl&quot;,[All Fields])) OR &quot;ldl cholesterol&quot;,[All Fields]) OR (&quot;ldl&quot;,[All  
Fields] AND &quot;cholesterol&quot;,[All Fields])) OR (((&quot;cholesterol, vldl&quot;,[MeSH Terms] OR  
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Fields] AND &quot;vldl&quot;,[All Fields])) OR &quot;cholesterol vldl&quot;,[All Fields])) OR (((&quot;cholesterol,  
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AND &quot;lipoprotein&quot;,[All Fields]) AND &quot;cholesterol&quot;,[All Fields])) OR &quot;very low density  
lipoprotein cholesterol&quot;,[All Fields])) OR (((&quot;cholesterol, vldl&quot;,[MeSH Terms] OR  
(&quot;cholesterol&quot;,[All Fields] AND &quot;vldl&quot;,[All Fields])) OR &quot;vldl cholesterol&quot;,[All  
Fields]) OR (&quot;vldl&quot;,[All Fields] AND &quot;cholesterol&quot;,[All Fields])) OR  
(((&quot;triglycerid&quot;,[All Fields] OR &quot;triglycerides&quot;,[MeSH Terms]) OR  
&quot;triglycerides&quot;,[All

	<p>Fields)) OR "triglyceride",[All Fields]) OR "triglycerids",[All Fields])) OR  (((("triglycerid",[All Fields] OR "triglycerides",[MeSH Terms]) OR  "triglycerides",[All Fields]) OR "triglyceride",[All Fields]) OR "triglycerids",[All  Fields])) OR ((("triglycerides",[MeSH Terms] OR "triglycerides",[All Fields]) OR  "triacylglycerol",[All Fields]) OR "triacylglycerols",[All Fields])) OR  (((("dyslipidaemias",[All Fields] OR "dyslipidemias",[MeSH Terms]) OR  "dyslipidemias",[All Fields]) OR "dyslipidaemia",[All Fields]) OR  "dyslipidemia",[All Fields])) OR ((("dyslipidaemias",[All Fields] OR  "dyslipidemias",[MeSH Terms]) OR "dyslipidemias",[All Fields]) OR  "dyslipidaemia",[All Fields]) OR "dyslipidemia",[All Fields])) OR  (((("dyslipidaemias",[All Fields] OR "dyslipidemias",[MeSH Terms]) OR  "dyslipidemias",[All Fields]) OR "dyslipidaemia",[All Fields]) OR  "dyslipidemia",[All Fields])) OR ((("dyslipidemias",[MeSH Terms] OR  "dyslipidemias",[All Fields]) OR "dyslipoproteinemia",[All Fields]) OR  "dyslipoproteinemias",[All Fields])) OR ((("dyslipidemias",[MeSH Terms] OR  "dyslipidemias",[All Fields]) OR "dyslipoproteinemia",[All Fields]) OR  "dyslipoproteinemias",[All Fields]))</p>
<p><b>EMBASE</b></p>	<p>&amp;#39;salvia&amp;#39;:ti OR &amp;#39;chia&amp;#39;:ti OR &amp;#39;salvia hispanica&amp;#39;:ti AND (&amp;#39;lipoprotein&amp;#39;/syn  OR &amp;#39;cholesterol blood level&amp;#39;/syn OR &amp;#39;lipid blood level&amp;#39;/syn OR &amp;#39;triacylglyceride&amp;#39;/syn  OR &amp;#39;high density lipoprotein cholesterol&amp;#39;/syn OR &amp;#39;low density lipoprotein cholesterol level&amp;#39;/syn  OR &amp;#39;very low density lipoprotein cholesterol&amp;#39;/syn OR &amp;#39;dyslipidemia&amp;#39;/syn OR &amp;#39;omega 3 fatty  acid&amp;#39;/syn OR &amp;#39;eicosapentanoic acid&amp;#39;/syn OR &amp;#39;docosahexaenoic acid&amp;#39;/syn OR &amp;#39;linoleic  acid&amp;#39;/syn OR &amp;#39;timnodonic acid&amp;#39;/syn)</p>



<p><b>SCOPUS</b></p>	<p>( TITLE-ABS-KEY ( &amp;#39;salvia&amp;#39; OR &amp;#39;chia&amp;#39; OR &amp;#39;salvia AND hispanica&amp;#39; ) ) AND ( ( TITLE-ABS-KEY ( &amp;#39;lipoprotein&amp;#39; OR &amp;#39;cholesterol AND blood AND level&amp;#39; OR &amp;#39;lipid AND blood AND level&amp;#39; OR &amp;#39;triacylglyceride&amp;#39; OR &amp;#39;high AND density AND lipoprotein AND cholesterol&amp;#39; OR &amp;#39;low AND density AND lipoprotein AND cholesterol AND level&amp;#39; OR &amp;#39;very AND low AND density AND lipoprotein AND cholesterol&amp;#39; OR &amp;#39;dyslipidemia&amp;#39; ) ) OR ( TITLE-ABS-KEY ( &amp;#39;omega 3 fatty AND acid&amp;#39; OR &amp;#39;eicosapentanoic AND acid&amp;#39; OR &amp;#39;docosaehaenoic AND acid&amp;#39; OR &amp;#39;linoleic AND acid&amp;#39; OR &amp;#39;tinnodonic AND acid&amp;#39; ) ) )</p>
<p><b>WEB OF SCIENCE</b></p>	<p># 6 74</p> <p>#5 AND #1 Índices=SCI-EXPANDED, SSCI, A&amp;amp;HCl, ESCI Tempo estipulado=Todos os anos Editar</p> <p># 5 23.268</p> <p>#4 AND #3 Índices=SCI-EXPANDED, SSCI, A&amp;amp;HCl, ESCI Tempo estipulado=Todos os anos Editar</p> <p># 4 2.652.694</p> <p>ALL=((Serum) OR (Blood Serum) OR (Plasma) OR (Blood Plasma) OR (Fresh Frozen Plasma) OR (Biomarkers) OR (Erythrocyte Membrane) OR (Erythrocyte Membrane) OR (Red Cell) ) Índices=SCI-EXPANDED, SSCI, A&amp;amp;HCl, ESCI Tempo estipulado=Todos os anos Editar</p>



<b>SCIELO</b>	"chia" OR "salvia hispânica"or "chia oil" OR "salba-chia" OR "salvia hispanica l." OR "chia seed" OR "Salvia"
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**Table S3.** Assessment of the quality of evidence and risk of bias in studies.

<b>Author, year</b>	<b>Randomization process</b>	<b>Deviations from the intended interventions</b>	<b>Missing outcome data</b>	<b>Measurement of the outcome</b>	<b>Selection of the reported result</b>	<b>Overall Bias</b>
Guevara-Cruz, et al., 2012	Low	Low	Low	Low	Some concerns	Some concerns
Guevara-Cruz, et al., 2019	Low	Low	Low	Low	Some concerns	Some concerns
Jin, et al., 2012	High	Some concerns	Low	Low	Low	High
Oliveira-de-Lira, et al., 2018	Low	Low	Low	Low	Low	Low
Nieman, et al., 2009	Low	Some concerns	Low	High	Some concerns	High
Nieman, et al., 2012	Low	Low	Low	Low	Low	Low
Toscano, et al., 2014	Low	Low	Low	Low	Some concerns	Some concerns
Medina-Urrutia, et al., 2020	High	Low	Low	High	Low	High
Vuksan, et al., 2007	Low	Low	Low	Low	Low	Low
Vuksan, et al., 2017	Low	Low	Low	Low	Low	Low

**Table S4.** GRADE assessment of lipid profile.

<b>Participants (studies)</b>	<b>Risk of bias</b>	<b>Inconsistency</b>	<b>Indirectness</b>	<b>Imprecision</b>	<b>Publication bias</b>	<b>Overall certainty of evidence</b>
<b>Total Cholesterol (mg/dL)</b>						
376 (6 RCTs)	Serious	Not serious	Not serious	Serious	Not suspected	⊕⊕○○ LOW
<b>LDL (mg/dL)</b>						
365 (7 RCTs = 5 meta-analysis 2 narrative synthesis)	Serious	Not serious	Not serious	Serious	Not suspected	⊕⊕○○ LOW
<b>HDL (mg/dL)</b>						
365 (7 RCTs = 5 meta-analysis)	Serious	Not serious	Not serious	Serious	Not suspected	⊕⊕○○ LOW

2 narrative synthesis)						
<b>Triglycerides (mg/dL)</b>						
365  (7 RCTs =  5 meta-analysis  2 narrative synthesis)	Serious	Not serious	Not serious	Serious	Not suspected	⊕⊕○○  LOW

**Table S5.** GRADE assessment of serum fatty acids.

<b>Participants (studies)</b>	<b>Risk of bias</b>	<b>Inconsistency</b>	<b>Indirectness</b>	<b>Imprecision</b>	<b>Publication bias</b>	<b>Overall certainty of evidence</b>
<b>Total FFA (mmol/L)</b>						
25 (1 RCT)	Serious	Not serious	Not serious	Not serious	Publication bias suspected	⊕⊕○○ LOW
<b>SFA (mmol/L)</b>						
25 (1 RCT)	Serious	Not serious	Not serious	Not serious	Publication bias suspected	⊕⊕○○ LOW
<b>MUFA (%)</b>						
45 (2 RCTs)	Serious	Not serious	Not serious	Not serious	Not suspected	⊕⊕⊕○ MODERATE
<b>PUFA - Total ω-6 (%)</b>						
45 (2 RCTs)	Serious	Not serious	Not serious	Not serious	Not suspected	⊕⊕⊕○ MODERATE

<b>LA (%)</b>						
58 (1 RCT)	Not serious	Not serious	Not serious	Not serious	Publication bias suspected	⊕⊕⊕○ MODERATE
<b>PUFA - Total ω-3 (%)</b>						
245 (6 RCTs)	Serious	Not serious	Not serious	Not serious	Not suspected	⊕⊕⊕○ MODERATE
<b>ALA (%)</b>						
245 (6 RCTs)	Serious	Not serious	Not serious	Not serious	Not suspected	⊕⊕⊕○ MODERATE
<b>EPA (%)</b>						
220 (4 RCTs)	Serious	Not serious	Not serious	Not serious	Not suspected	⊕⊕⊕○ MODERATE
<b>DHA (%)</b>						
142 (3 RCTs)	Serious	Not serious	Not serious	Not serious	Not suspected	⊕⊕⊕○ MODERATE
<b>DPA (%)</b>						



66 (2 RCTs)	Serious	Not serious	Not serious	Not serious	Not suspected	⊕⊕⊕○ MODERATE
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**Table S6.** Summary of main findings.

<b>Outcomes</b>	<b>Studies (n)</b>	<b>Results</b>	<b>Certainty of evidence (GRADE)</b>
<b>Lipid profile</b>			
Total Cholesterol (mg/dL)	6	MD = -2.98, 95% CI = [-9.98; 4.02]	Low
LDL (mg/dL)	7	MD = - 4.08 mg/dL, 95% CI = [-14.29; 6.14]	Low
HDL (mg/dL)	7	MD = -5.85 mg/dL, 95% CI = [-13.56; 1.86]	Low
Triglycerides (mg/dL)	7	MD = -14.09 mg/dL, 95% CI = [-33.46; 5.28]	Low
<b>Serum fatty acids</b>			
Total FFA (mmol/L)	1	Reduction effect.	Low
SFA (mmol/L)	1	Reduction effect.	Low
MUFA (%)	2	Opposite effect.	Moderate
PUFA - Total $\omega$ -6 (%)	2	Elevation or no effect.	Moderate
LA (%)	1	Elevation effect.	Moderate
PUFA - Total $\omega$ -3 (%)	6	Elevation or no effect.	Moderate

ALA (%)	6	Elevation effect.	Moderate
EPA (%)	4	Elevation or no effect.	Moderate
DHA (%)	3	Reduction or no effect.	Moderate
DPA (%)	2	No effect.	Moderate