The study was conducted to evaluate the effects of α-linolenic acid (ALA) on frozen–thawed quality and fatty acid composition of bull sperm. For that, twenty-four ejaculates obtained from three bulls were diluted in a Tris extender containing 0 (control), 3, 5, 10 and 15 ng/ml of ALA. Extended semen was incubated at 37°C for 15 min, to allow absorption of ALA by sperm cell membrane. The sample was chilled for 2 h, packed into 0.25-ml straws and frozen in liquid nitrogen for 24 h. Subsequently, straws were thawed and evaluated for total sperm motility (computer-assisted semen analysis), membrane functional integrity (hypo-osmotic swelling test), viability (eosin-nigrosin), fatty acid composition (gas chromatography) and lipid peroxidation (thiobarbituric acid-reactive substances (TBARS)). A higher (p < 0.05) percentage of total sperm motility was observed in ALA groups 5 ng/ml (47.74 ± 07) and 10 ng/ml (44.90 ± 0.7) in comparison with control (34.53 ± 3.0), 3 ng/ml (34.40 ± 2.6) and 15 ng/ml (34.60 ± 2.9). Still, the 5 ng/ml ALA group presented a higher (p < 0.05) percentage of viable sperms (74.13 ± 0.8) and sperms with intact membrane (74.46 ± 09) than all other experimental groups. ALA concentration and lipid peroxidation in post-thawed sperm was higher in all treated groups when compared to the control group. As such, the addition of 5 ng/ml of ALA to Tris extender improved quality of frozen–thawed bull spermatozoa.

Keyword: ALA; Tris extender; Bull sperm