# **Titre d’article**: *Effect of the essential oil of Rosmarinus officinalis (L.) on rooster sperm motility during 4°C short-term storage*

**Abstract :**

Aim: This study aimed to investigate the protective effect of Rosmarinus officinalis (L.) essential oil on rooster sperm motility during 4°C short-term storage. Materials and Methods: R. officinalis essential oil was analyzed using gas chromatography coupled to mass spectrometry to identify the active components. 10 of 45-week-old Hubbard commercial broilers were subjected to biweekly semen collections during 3 weeks. At each collection, sperm was pooled and divided into four aliquots and then diluted with Tris extender supplemented with 870, 87, or 8.7 µg/ml of R. officinalis essential oil, identified as treatments R, R5, and R10, respectively. Tris-based extender without any supplementation was considered as a control group. Diluted sperm was then stored at 4°C in the refrigerator and analyzed at 0, 6, 24, and 48 h using a computer-assisted sperm analyzer. Different semen parameters were measured including total motility, progressive motility, gametes velocities (straight line velocity [VSL], curvilinear velocity [VCL], and average path velocity [VAP]), amplitude of the lateral head displacement [ALH], and beatcross frequency [BCF]. Results: The phytochemical analysis of R. officinalis essential oil revealed the presence of 25 active components including seven major molecules: Camphor (18.88%), camphene (5.17%), 1,8-cineole (7.85%), β-thujene (13.66%), α-thujene (4.87%), chrysanthenone (12.05%), and β-cubenene (7.97%). The results showed a beneficial effect of R. officinalis essential oil on sperm cells motility, particularly when using the lowest concentrations, 8.7 and 87 µg/ml. Progressive motility and gametes velocities (VCL, VSL, and VAP), materializing the quality of gametes motility, showed highly statistically significant values (p