Abstract: There is clear evidence of the nutritional benefits of consuming long-chain n-3 PUFA, which are found predominantly in oily fish. However, oily fish consumption in this part of our country is low, while poultry consumption is on the rise. This work considers the feasibility of increasing omega3 fatty acid content in edible tissues of poultry by feeding the birds with an EPA-DHA supplemented diet. The hens diet was supplemented with 2.5% fish oil. The specific aim of this research was to determine the fat content as well as the fatty acids composition in poultry meat. The study was carried out on twelve laying hens (H&N Brown Nick) provided by a local commercial egg producer. Total fat was determined by Soxhlet method and the fatty acids profile was performed with gas chromatography method. Fat content of chicken meat significantly decreased from 10.09g/100g (for the control birds) to 8.3g/100g (for the birds fed with the supplemented diet). The results also showed that the concentration of EPA and DHA significantly increased in edible tissue of the birds fed with the supplemented diet compared against the values obtained for the birds fed with the control diet. Therefore; the enriched bird diet improved the fatty acid content of the obtained poultry meat. These finding can be used in the local poultry (broilers) production to increase the omega3 fatty acids content in the poultry meat, generating nutritional benefits for the consumers in this part of our country.