In the present study, our ~~L~~light microscopy and propidium iodide staining assays confirmed the differences ~~nuclear damage and condensed nucleus~~ between normal HUVECs and HUVECs experiencing H_2O_2 ~~-~~induced oxidative stressed ~~HUVECs~~. In normal HUVECs, we found evidence of ~~appeared to be~~ normal morphology ~~with~~ involving a circular~~-~~shaped nucleus free of ~~without~~ condensed or pyknosis cells (Figure 9). In contrast, HUVECs suffering from H_2O_2 ~~-~~induced oxidative stressed ~~HUVECs shown~~ clearly exhibited irregular shapes, ~~exhibiting~~ condensation, and nuclear pyknosis ~~was clearly visible~~ (Figure 10). As shown in Figure 9, HUVECs experiencing H_2O_2-induced oxidative stress exhibited normal cell-growth physiology when exposed for 48 h to the 20 μg/mL of the OM extract and the OM-AgNP~~s~~ treatment ~~to H_2O_2 induced oxidative stressed HUVECs for 48 h showing normal morphology resembles the normal physiology of cell growth (Figure 9)~~. ~~In addition,~~ Under light microscopy, HUVECs treated with MP extract and MP-AgNPs ~~nanoparticles treated HUVECs shown~~exhibited mild morphological change and a decreased number of cells ~~in light microscopy~~ (Figure 9), and ~~in~~ PI staining ~~found~~ revealed ~~with~~ shrunken and moderately damaged nuclei~~changes in nuclear shape with shrunken and moderate damage~~ (Figure 10). Most notably, under light microscopy, both ML extract and ML-AgNPs ~~nanoparticles found~~ were associated with the smallest observed ~~a least~~ number of viable cells, ~~in light microscopy~~ and PI staining revealed irregularly shaped, shrunken, and damaged nuclei~~shown irregular shape of nucleus with shrunken and damaged nucleus~~ (Figure 10). Overall, 48 h of OM extract and OM-AgNP~~s~~ treatment applied to HUVECs experiencing H_2O_2 ~~-~~induced oxidative stressed ~~HUVECs~~ significantly decreased the structural abnormalities and increased the ~~abnormal appearance on nucleus structure and~~ normal

morphology of nuclei ~~us is observed when~~ in contrast to ~~compared to~~ the MP ~~or~~and ML extracts ~~or~~and nanoparticles. H_2O_2~~A~~ produced quite a few~~large number of~~ reactive oxygen species (free radicals) ~~are produced by H2O2~~ that ~~, causing~~ oxidatively damaged ~~to~~ vascular endothelial cells, stimulated~~ing~~ apoptosis, and promoted~~ing~~ atherosclerotic ~~the~~ formation ~~of atherosclerosis~~. In this regard~~turn~~, ~~the role of~~ plant polyphenols have~~s~~ been shown to possess potential value as nutrients capable of ~~in preventing~~countering oxidative stress and stimulating cell growth [40]. Our ~~results~~ findings are in consistent **(← are consistent with? are inconsistent with?)**with those presented by Subash-Babu et al. [41], ~~they~~who, using ~~found that~~ microscopy and fluorescent PI staining, found that ~~of~~ HUVECs exhibited normal morphology and thus neither ~~without~~ any irregular shape nor any intense nuclear material after treatment with nanoparticle-synthesized basil seeds ~~compared to the original extract~~. The effects of nanoparticle synthesis in **(← in our present study? in the aforementioned study?)**were~~as~~ remarkable in their ability to promote both the proliferation ability of HUVECs and nuclear integration.

Because we know that ~~O~~oxidative stress ~~is a~~ contribute~~sing factor~~ to the aging of endothelial cells, ~~and hence~~ there is a strong need to ~~improve therapeutic opportunities to~~ protect cells from oxidative stress. In this regard, ~~such as~~ polyphenols~~,~~ constitute one of the most important antioxidants capable of countering a wide range of ~~that fight all factors of~~ cell-damaging factors~~e~~. To understand polyphenols, we must appreciate ~~T~~the importance of mRNA gene expression, which helps determine ~~lies in understanding~~ how cells functions and how ~~the effect of~~ oxidative stress such as lipid peroxidation (LPO) can affect ~~on~~ multiple intracellular signals, leading to inflammatory signals, apoptosis, ~~or~~ and cell overgrowth. ~~On the other hand, a~~Nonenzymatic antioxidants not only prevent the production of oxidants that ~~cause~~ directly damage ~~to~~ large molecules ~~and~~but also increase the activity of such antioxidant enzymes ~~such~~ as superoxide dismutase (SOD), glycogen synthase kinase-3 beta, (GSK-3 β),~~,~~ and glutathione peroxidase (GPx) [42]. In

the present study, we quantified both the ~~O~~oxidative stress (LPO) levels and the antioxidant-related (SOD, GSK-3β, and GPx) ~~related~~ mRNA-expression levels that were exhibited in HUVECs during a 48h period. To perform this quantification, we used ~~were quantified in~~ (1) a vehicle control, (2) OM, MP, and ML extracts, and (3) OM-AgNPs, MP-AgNPs, and ML-AgNPs ~~during a 48h period~~. In contrast to normal cells, ~~W~~we found significantly ($p \leq 0.001$) ~~increased~~ elevated LPO-expression levels ~~of (LPO)~~ and decreased SOD-expression, GSK-3β-expression, and GPx-expression levels ~~of (SOD, GSK-3β, and GPx) expression~~ in HUVECs experiencing H_2O_2-induced oxidative stress~~HUVECs~~ (Figure 11 a, b, c, & d) ~~when compared to normal cells~~. Treatment with OM and its nanoparticles resulted in substantially lower ~~significantly decreased~~ levels of oxidative stress and substantially higher ~~increased~~levels of antioxidant-related mRNA expression than was the case in ~~when compared with oxidative stress induced~~ oxidatively stressed HUVECs. ~~The~~ We also found that antioxidant gene expression was ~~found to be~~ higher in the presence of OM ~~or~~and OM-AgNP~~s~~ treatment ~~when compared to~~than in the presence of MP extracts, ~~,~~ ML extracts, ~~or~~ MP-AgNPs, and~~,~~ ML-AgNPs ~~nanoparticles~~.

We quantified ~~M~~mitochondrial oxidative capacity (CYP1a) and the mRNA expression levels of the tumor-suppressor gene ~~(~~p53~~)~~ ~~related mRNA expression levels were quantified~~ in HUVECs at the end of a 48-h period. As above, we performed this quantification by using (1) a vehicle control, (2) OM, MP, and ML extracts, and (3) OM-AgNPs, MP-AgNPs, and ML-AgNPs ~~nanoparticles on HUVECs after 48 h~~ (Figure 12). We noted that oxidatively stressed HUVECs ~~Oxidative stress induced HUVECs found with~~ exhibited ~~decreased~~ lower expression levels of CYP1a and higher expression ~~increased~~ levels of p53 ~~expressions~~than was the case with **(←with normal HUVECs?)**. Treatment with OM and OM-AgNPs significantly ($p \leq 0.001$) increased the CYP1a levels in both ~~in~~ normal and oxidatively stressed ~~induced~~ HUVECs within 48 h. The MP extract ~~or~~and the MP-AgNP~~s~~ ~~nanoparticle~~ treatment ~~have~~were also associated ~~found~~ with an increase~~d~~ in