Therapeutic Effects of Aqueous and Ethanolic Extract of Phyllanthus amarus on 1, 2 Dimethylhydrazine Induced Colon Carcinogenesis in Balb/C Mice

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Cancer is a large group of disorders characterized by uncontrolled cellular proliferation. Cancer cells are also capable of metastasizing to other regions causing a number of devastating outcomes [9]. Nearly all body organs are vulnerable to cancer with liver, colon, and breast being the most common ones. Colon cancer is a type of cancer that begins in the large intestine (colon). e colon is the nal part of the digestive tract. Colon cancer has an estimated incidence of over 1 million new cases annually worldwide [10]. Almost one of three patients with colon cancer dies from the disease. Colon cancer also more o en a ects people of well-developed countries in comparison to less developed countries [11]. Colorectal cancer is one of the leading causes of tumor-related death and despite its high prevalence, the underlying pathological mechanism remain elusive [9]. Colorectal cancer is a multistep process a ected by environmental and genetic factors which lead to normal colonic epithelium to dysplasia followed by a benign precursor stage, the pre-malignant polyp and can progress to invasive disease. Besides a genetic pre-disposition, diet also determines the risk for colon cancer and predominantly diets rich in fruit and vegetable diminish the risk of the disease [10].

In the present investigation, 1,2 Dimethylhydrazine -induced model was utilized, as it is similar to histopathological and molecular characteristics of the human colon cancer model [11]. 1,2 Dimethylhydrazine is metabolized in the liver to form Azoxymethane and methylazoxymethanol later transported to the colon via bile or blood to generate its ultimate carcinogenic metabolite, diazonium ion which elicits oxidative stress by methylating biomolecules of the colonic epithelial cells thus leading to promutagenic events, in ammation

GroupC (DMH, 250mg/kgbwt Et. P.amarus)	1.00 ± 0.82	6.00 ± 1.63	12.50 ± 2.86
GroupD (DMH, 350mg/kgbwtEt. P.amarus)	7.00 ± 2.08	2.00 ± 0.99	4.33 ± 2.03
GroupE (DMH, 250mg/kgbwtAq. P.amarus)	1.50 ± 0.50	9.00 ± 1.01	8.50 ± 0.70
GroupF (DMH, 350mg/kgbwtAq. P.amarus)	3.33 ± 0.33	7.33 ± 1.20	6.00 ± 0.58

pro-apoptotic e ects in colon cancer cell line in a concentration dependent manner [28]. Lignin a bioactive in P.amarus also contributes to the prevention of colon cancer. e mechanism of action is the ability of colon bacteria to convert it into biologically active lignans such as enterodiol and enterolactone. ese lignans are structurally similar to estradiol and therefore, they exert anticancer e ects on hormone-related cancer [29,30].

Aberrant cryptic foci are useful intermediate biomarkers in detecting modifying in uences of natural and synthetic compounds on chemically induced colon carcinogenesis, which represents the preneoplastic lesions [25]. Cell proliferation, plays an important role in

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