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In Silico Protein-protein Interaction of *Pteoris volitans* Venom with Cancer inducers of *Helicobacter pylori* †

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Abstract: The human gut serves as a natural habitat for several bacteria with many nutrients accessible for their sustenance. Apart from their beneficial role, these bacteria are also liable to cause certain pathological conditions such as cancer and bowel disease. Gastric cancer is one such pathological condition induced by the bacteria *Helicobacter pylori*. Targeting the key virulence factors of*H.pylori*causing gastric cancer is one such promising method for treating gastric cancer. Although several drugs and targeted therapies are used as a component of therapy to treat malignancies recently, many efforts are put into the research and development of anticancer drugs derived from natural products. *Pterois volitans* is a red lionfish found in the Indian and western Pacific oceans. Recently research has been focused on analyzing the adrenergeric, cholinergeric and anticancer properties of their venom proteins. Testing the anticancer activity of the lethal proteins in the venom of *P.volitans* provides a bioactive compound for cancer treatment but is also helpful to eliminate the ecological imbalance caused by this fish in the marine environment. This study is focused on an in silico approach using Z-dock for analyzing the bioactive prospective of the venom proteins of *P.volitans* against the key virulence proteins of *H.pylori* responsible for inducing cancer. Our in silico docking study using a computational model of the venom proteins and *H.pylori* proteins has displayed the possible interactions between these proteins. The results revealed that the venom proteins of *P.volitans* hyaluronidase and PV toxin-a effectively interacts with *H.pylori* proteins Cag A, Cag L, GGT, Cag D, and Urease and may be promising proteins in cancer therapy

Keywords: gastric cancer; *Helicobacter pylori; Pterois volitans*; venom protein; Z-dock.

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Conflicts of Interest

The authors declare no conflict of interest.